H E Riggs

CAPITALIZATION

A BOOK ON

CORPORATION FINANCE

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BY

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PREFACE

I HAVE written this little book from the experience of a number of years in association with banking-houses engaged in the business of buying and selling corporation securities, and as a lawyer occupied in working out the financial arrangements of corporations. It assumed form in the course of presenting the subject to graduate students at Dartmouth College in the Tuck School of Administration and Finance. I have taken advantage of this fact of class discussion as an excuse for using the word "we" in the writing.

I hope the book will prove of benefit to other students of the subject — not only in schools like the Tuck School, but especially to the many young men engaged in financial work who find difficulty in getting help to understand the complex matter of their profession. It will be useful, also, I believe, to the large number of people who invest in corporation securities, either on their own account or for financial institutions. The number of investors who want a thorough comprehension of what they are doing increases rapidly. It may in some cases possibly help a lawyer to get a better understanding of the needs of his client. And all citizens who want to base on knowledge their opinion of the proper attitude of the Government towards corporations will find in the book a statement of the fundamental principles of corporation financing.

In attempting a work of use to so wide a range of people, I have necessarily had to make some parts of it rather elementary for the more informed, and some parts somewhat difficult for those entirely unfamiliar with securities. It omits many things that might properly come within its scope.

Several friends have generously assisted by reading much of the manuscript, especially: Mr. John Tatlock, formerly president of the Washington Life Insurance Company, now president of the Westchester Avenue Bank, New York; Mr. Carl Owen, a member of the law firm of Hornblower, Miller & Potter, New York; Mr. Lawrence Chamberlain, the securities expert for the banking-house of Kountze Bros., New York.

Since it seemed much more interesting to use largely for examples existing securities and corporations, rather than to assume entirely hypothetical situations for this purpose, I have taken actual cases with the utmost freedom. Such figures, especially prices, become obsolete almost the hour after they are written. I have made no attempt to keep them up-to-date, or even of a uniform time, but give them simply for their usefulness in illustrating a principle.

W. H. Lyon.

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I

THE INSTRUMENTS OF CORPORATION FINANCE

If our inquiry into corporation finance can follow the tree trunk and a few main branches, we shall probably gain a more thorough understanding of the financial structure of corporations than we can get by looking from the outside at the obvious foliage of multitudinous security forms and financial plans. Books on the subject have mostly confined themselves to answering the question "What?" and have largely ignored the question "Why?" So far as possible we shall find the determining causes first, and afterwards consider the results they work out. We shall confine our inquiry to the capitalization of corporations, and not enter on many matters that the general subject of corporation finance might properly lead into.

On pressing the inquiry, we are able to find several main formative influences which explain the various developments of corporate capitalization. The desire to apportion the elements of risk, income, and control involved in an enterprise largely accounts for the numerous forms of securities. A knowledge of this line of inquiry makes the shortest way to an understanding of the many kinds of stocks, bonds, and other financial paper of corporations. The present and prospective earning power of a corporation, with the desire of those in control of its affairs to make as much as they feel they safely can on their own capital invested, gives another principal influence determining the financial plan. It partly decides the kinds of securities the corporation finances on, and more especially their relative amounts. We shall discuss this relation of capitalization and earnings under the head of "Trading on the Equity." Another line of inquiry follows the relation of assets to capitalization; the extent, that is, to which they determine the form and amount of security issues. We shall take this up under the head of "Watered Stock."

Next after these three forces existing in every case, we find the desire to extend the enterprise of a corporation affecting the financial plan and leading to a number of new kinds of securities. A consideration of "Financing an Expansion" will look into the working of this influence. In a discussion of "Amortization" we shall see in what ways a desire to pay off long-term indebtedness may shape corporation bond-issues. A number of influences determining details and affecting larger matters naturally group under the captions of "Form" and "The Market and Price." On the subject of "Capitalization and the State" we shall raise the questions involved in government regulation of capitalization and earnings, and describe what the public service commissions of the three states which have carried this matter farthest have done.

Corporation finance has developed through the promoters, organizers, or managers of corporations bargaining with capital-owning members of the community. Usually both these parties deal through a third party, the investment banker. Though not an agent in any legal sense, the banker nevertheless does act as an intermediary, and frequently occupies, with considerable dignity, the rather difficult position of having an interest in both the other parties to the transaction.

As a matter of fact, the banker, rather than really representing either party, almost occupies the position of an umpire, and decides on the fair bargain all round. Of course he charges as much as he can for his services and any risks he takes. In many transactions his entire concern lies with the investor, whom he calls his client; and it always should lie most in that direction. Whatever his interests, the banker, assisted by the advice of his lawyers, has, without doubt, exercised the chief directive influence in the development of corporation finance.

Since our subject has grown, and is growing, in this way, we can get much help in understanding it by examining this bargaining among the parties, and tracing through the various transactions.

From a financial viewpoint the corporate form of conducting business presents one most significant feature, — the opportunity it affords for dividing and recombining the incidents of ownership in varying proportions. By "incidents of ownership" we mean management, income, and risk.

Personal owners can to a limited extent separate the incidents of ownership. A lease will put management entirely on one side, together with a part of income and a part of risk, and set the rest of income and risk on the other side. In the same manner a mortgage will effect the division, but place the management entirely on the opposite side, with part of the income and part of the risk, and leave together the rest of income and risk.

If a man owns property and leases it, he hands management entirely to others. By mortgaging the property, he retains management entirely to himself. Though a partnership may further divide the ownership after the incidents have been split, it has no means to distribute the incidents themselves in any other manner or proportions. And a trustee holding formal title does not effect any other distribution.

The situation will become somewhat plainer by putting it more concretely. John Smith owns a farm worth $5000. He has all the incidents of ownership. Management and risk rest entirely with him; income goes entirely to him. In the course of time he feels unable to carry all the burden of management. Maybe he would like to keep part of the management, exercise some control, and continue a fairly large share of the risk. By hiring a man to run the farm, he could relinquish administration and retain control, but he would continue all the risk. He would succeed in dividing management into administration and control, but he would not succeed in dividing risk at all. He is unwilling to continue all the risk unless he also continues the entire management, and this is just what he is seeking to avoid.

He can let the farm on shares; that is, the rental is not to be fixed, but to be a certain proportion of the income. But this would be to relinquish management entirely, yet retain the full nature of his original risk. He has, so to speak, split risk perpendicularly but not horizontally. He can lease the farm for a fixed rental. Through this course he would part with all the management and decrease his risk and income. By selling the farm and taking a mortgage back, he would likewise part with the entire management and further decrease his risk and income. If, instead of a first, he takes a second mortgage, he will not diminish risk and income so much.

Personal ownership affords no course between, on the one hand, an absolute retention of all management, or at least control, in the case of a possible hiring of administration, with the retention of a large share of the risk and income, and, on the other hand, an absolute parting from management, with a consequent parting from a large share of income and risk. Further, the limited number of possible divisions afforded of the incidents of ownership forces the apportioning of income and risk along fairly rigid lines.

Through a peculiar personification of ownership and enterprise, the corporation makes possible a parceling-out of the incidents of ownership in many combinations, an allotment of management, risk, and income in varying proportions. The line of apportionment no longer remains rigid, but becomes very flexible.

Actual practice has already carried far the division, sub-division, and rearrangement. The corporate form immediately divides, or marks the line of division of management, into administration and control. Shareholders possess control, but through directors delegate administration to officers. Varying rights given special classes of stock make a widely varying apportionment of income, control, and risk. Common shareholders accept a maximum of risk in expectation of a maximum of income. They may share the incident of control equally or in varying proportions with other classes of stock. Sharing control in varying proportion does not mean here through unequal divisions in the total *amounts* of common and other classes of stock, but that each share of one class represents an essentially different amount of control from each share of the other.

If two classes of stock enjoy exactly equal rights, except that one has a preference as to income and perhaps assets, they do not divide control, but risk, and the combination of control plus risk in one, as compared with the combination of control plus risk in the other, makes the ownership represented by one class entirely different from the ownership represented by the other. But the rights may differ, aside from the preference of one as to income and assets or either.

We may speak of these divisions and combinations of income, control, and risk, creating different *kinds* of ownership, as horizontal divisions. With that idea in mind we may make a diagram like this representing a simple case: —

Capitalization, $3,000,000

$1,000,000 common stock	Greatest risk: half present control; no limitation of income.
$1,000,000 preferred stock	Less risk: half present control; limited income.
$1,000,000 first mortgage bonds	Least risk: little or no present control, but contingent complete control; limited income.

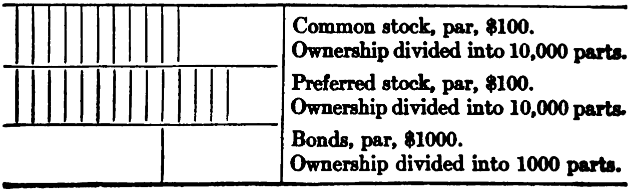
Now, if we make some further stipulations about this corporation, as that its net earnings are $200,000, that the preferred stock is 6 per cent non-cumulative, and that the bonds are 5 per cent, without any rights of control contracted for except the right of foreclosure on default of payment of interest or principal, we can make the diagram a little more definite: —

Capitalization, $3,000,000

$1,000,000 common stock	Great risk: 50 per cent of actual present control; 45 per cent of present income which may increase in amount.
$1,000,000 preferred stock 6 per cent non-cumulative	Much less risk: 50 per cent of present control; 30 per cent of present income, which cannot increase in amount.
$1,000,000 5 per cent first mortgage bonds	Least risk: no actual present but full contingent control: 25 per cent of income which cannot increase in amount.

We have not yet mentioned another division of ownership, that represented by the *number* of shares of stock or the *number* of bonds. Though in practice corporation financing carries this division much further than private financing, the division itself is not peculiar to the corporate form. It appears in the partnership as complete in its nature as in a corporation, and makes a division into *amount* of ownership rather than *kind*, — into *quantity* rather than *quality*. To carry out the metaphor of a horizontal division as indicating a division into kinds of ownership, we may call this division indicating quantity of ownership a perpendicular division.

Further, to carry the metaphor into a diagram with the same facts as before, we have:—



Now, these two kinds of divisions of ownership accomplish two very different results. The perpendicular division of amounts of ownership makes possible the fitting of every man's pocket-book or financial ability. As already stated, however, this is not peculiar to the corporation. A partnership can accomplish it, and to a limited extent in practice has accomplished it. One of three or more partners may have one third or one fourth or any other fractional amount of the total ownership. Nothing in the nature of a partnership prevents this from being carried very far, possibly even so far as the quantity divisions of ownership in the United States Steel Corporation or the Pennsylvania Railroad, whose security-holders number tens of thousands.

The horizontal division into *kinds* of ownership makes possible a more difficult fitting than fitting a man's pocket-book. It makes possible the fitting of his type or state of mind. One man may be more or less willing to take a chance than another. The same man may be more willing at one time than another. He may be unwilling to take any risk whatever without having some control. We saw by the example of the man owning a $5000 farm how difficult it might be, under personal ownership even in a very simple case, to meet a man's state of mind regarding what he wants of the incidents of control, risk, and income.

We cannot consider corporate financing apart from ownership, nor ownership apart from owners. Ownership and owners enter into the consideration as necessarily as the various gases enter into the composition of water. Personal ownership has not developed the ability to fit types and states of mind closely. The fact that corporate ownership has, accounts for a great part, perhaps for the greatest part, of the success of the corporate form of enterprise.

A corporation's stock regularly carries the largest share of actual present control and also regularly the largest share of risk. Organizers of a corporation may contract out to holders of other classes of securities some of the control exercised by the stock, and to that extent place control with the other class of securities. For example, a corporate agreement may stipulate that the corporation shall not extend its plant until earnings equal at least twice the interest on its first mortgage bonds. Such a stipulation cuts off a very material power, or part of control, from the stock and places it with the bonds. If made at the time of organization the stock never possesses the power. But the stock may possess the power at the time of organization and later part with it for the sake of gaining some other advantage. The usual gain in parting with an advantage of this kind already possessed is the securing of additional capital in the enterprise, which will not come in except on this stipulation, or because of it will come in on sufficiently better terms than otherwise.

Though regularly carrying the largest share of actual present control, the stock may itself divide into two or more classes having obviously divergent interests, with the result that each class will exercise for different purposes the amount of control it possesses. If there is common stock and preferred stock with a limited dividend, the common shareholders may throw their influence in favor of a more hazardous conduct of the enterprise with an expectation of greater profit accruing to them. Since the preferred shareholders, however, do not get income beyond the limited dividends, if the corporation pays these limited dividends to their full amount, the preferred shareholders will throw their influence in favor of the safer conduct of business against the hazards the common shareholders would gladly undertake for the hope of greater profits.

Interests of both classes of shareholders might coincide. If the corporation should not earn enough to pay the full dividends the preferred stock is entitled to, the preferred shareholders might desire the more hazardous conduct of the business as eagerly as the common shareholders. If the amount of preferred and common were the same, and each had the same voting power, each class would enjoy control equally. In practice this might not lead to a dead-lock in policy, even though the interests of the two classes were diverse: one shareholder owning a large amount of common and a small amount of preferred might vote his preferred to favor his common.

If the amount of common were twice as great as the amount of preferred, and a share of each class had the same voting rights, the quality of control would in a way differ just as truly as if the amounts of each class were equal but a greater voting power were given the common than the preferred. In either case the common shareholder in a clash of interests would be more likely to have the corporation's policy incline to his advantage. We shall discuss this more fully later.

A corporation having only one class of stock outstanding, and no other securities, offers, of course, the simplest type of stock. Such a security carries all the control, all the income, and all the risk. It effects only a vertical division of ownership, like the division of a partnership. An enterprise financed entirely with one class of stock gains, of course, the regular corporate advantages, — an easy separation of administration and control, an easy vertical division into a large number of shares that makes a market possible, and limited liability. Such financing does not take advantage of the appeal to different types of mind. It is the proper form, however, if a satisfactory division of income, management, and risk cannot be made. A mining corporation especially cannot well divide the peculiar hazards of the enterprise. Since any class of mining securities must retain so much risk, investors will not sacrifice anything of income or control. A satisfactory adjustment cannot be made. So it naturally follows that nearly all mining corporations, including oil companies, have only one class of stock and no other securities. If they do have any preferred stock or bonds, such issues are almost always of comparatively small amounts. Coal-mining companies have issued bonds to some extent. The business rests on a more assured basis than mining for metals.

Manufacturing companies frequently issue no securities but their common stock. Probably the general greater simplicity of our industrial corporation financing comes about from the fact that the enterprises they are engaged in inherit directly old established kinds of business. Traditionally they cling more closely to the form of private enterprise. So far our financial ingenuity has directed itself for the most part to the comparatively new forms of business, — the railroads and other public-service corporations. With the coming of the big industrial combinations more complex forms of financing appear, and will probably make their way generally into industrial corporations. Even of our big industrial enterprises many are still largely family affairs, — such, for example, as the Arlington Mills manufacturing cotton and wool at Lawrence and Methuen, Massachusetts, which have their entire capitalization of $6,000,000 in common stock. The business may have been hazardous in the beginning and, like mining, not have offered the basis for more than one form of security, and subsequently may not have needed any other for its financing. The Mergenthaler Linotype Company has its entire capitalization of $12,786,700 in common stock on which it pays 15 per cent dividends.

Some very large concerns have no capitalization but their common stock. The Singer Sewing Machine Company has its entire capital in $60,000,000 common. The Pullman Company has no securities but its common stock, amounting to $120,000,000. Though a holding company may have only common stock outstanding, that fact does not necessarily indicate simplicity, for the subsidiary companies may have complex capitalizations.

An issue of preferred stock at once creates two kinds of ownership, — one, that of the preferred shareholder, with the less risk and presumably a corresponding limitation of income; the other, that of the common shareholder, with the greater risk and no limitation of income but the earning power of the business. If a corporation has no securities but stock outstanding, obviously the preferred and the common share the entire ownership. In that case the common shareholder gets the advantage of trading on the equity, or taking a greater risk in expectation of a greater income, which we shall discuss later, without running the risk he would, if there were bondholders, of having the property taken entirely out of his control under adverse circumstances. To offset the advantage just mentioned, the holder of common stock must share immediate control with the preferred stockholder. Conversely, the preferred stockholder gets the advantage of less risk and the advantage of a large share of immediate control. Compared with a bondholder, he accepts the disadvantage of not being able to get possession of the entire control for his own benefit in case his income is less than he anticipates.

Income on preferred stock is limited usually to some definite amount. Commonly this runs all the way from 4 per cent to 8 per cent. Commonly, too, this limited income offsets the lessened risk gained by the preference. Some large issues of preferred stocks showing varying dividend rates that are fixed are: Union Pacific Railroad, 4 per cent; Baltimore & Ohio Railroad, 4 per cent; Kansas City Southern Railway, 4 per cent; Southern Railway, 5 per cent; Interborough-Metropolitan Company, 5 per cent; St. Louis Southwestern Railway, 5 per cent; American Agricultural Chemical Company, 6 per cent; Boston & Maine Railroad, 6 per cent; United States Rubber Company, second preferred, 6 per cent; Central Leather Company, 7 per cent; Crucible Steel Company, 7 per cent; International Harvester Company, 7 per cent; United States Steel Corporation, 7 per cent; United States Rubber Company, 8 per cent.

Preferred stock may not reach its limit of income at the stated dividend rate, but its preference may end there. It may have the right, after the common receives a certain dividend, to share with the common in any further dividend disbursements. If it has this right to further income, it adds the name of "participating" stock. For example, a holder of the preferred stock of the Chicago, Milwaukee & St. Paul Railway is entitled to 7 per cent before the company can pay anything on the common. After the company has also paid 7 per cent on the common, the preferred shareholder has a right to share equally with the common shareholder in any further distribution of dividends. If the company should pay the common shareholder 8 per cent, it would also have to pay the preferred shareholder 8 per cent.

It may be that whatever the company pays on the common it will have to pay that much extra on the preferred. That is the case of the Chicago & Alton Railroad, which has a comparatively small amount of preferred stock outstanding. On this stock the company must pay 4 per cent dividends before paying any dividends on the common; then, if it pays 1 per cent on the common, it must pay 5 per cent on the preferred. It did so pay extra dividends of 1 per cent, August, 1908; 4 per cent, August, 1909; 2 per cent, February 1910; August, 1910, none. The present Chicago & Alton Railroad issued the stock when the company in 1906 consolidated the Chicago & Alton Railway and the former Chicago & Alton Railroad, and wanted, by the use of this security, to get in comparatively small amounts of the preferred and common stocks of the old railroad company then outstanding.

Other examples of *participating* stocks are: Buffalo, Rochester & Pittsburgh Railway Company, 6 per cent preferred; after 6 per cent is paid on both classes, both share equally. Wisconsin Central Railway, 4 per cent preferred; after 4 per cent is paid on both classes, both share equally. Minneapolis, St. Paul & Sault Ste. Marie Railway, 7 per cent preferred; after 7 per cent is paid on both classes, both share equally. Westinghouse Electric and Manufacturing Company, 7 per cent preferred; after 7 per cent is paid on both classes, both share equally. In the case of the Chicago Northwestern Railway 7 per cent preferred stock: after the common stock has received 7 per cent, the preferred is entitled to additional dividends up to 3 per cent more, then common is to receive a further 3 per cent. Under this arrangement the preferred is receiving 8 per cent and the common 7 per cent. Unless there are some further restrictions, this seems a very honest course, as the common stock amounts to nearly six times the preferred, and its holders would naturally rather have a surplus accumulate till the full 3 per cent extra could be paid on both preferred and common stocks. The right to further dividends may not amount to full participation, but only to receive an additional sum, as in the case of the Pittsburgh, Cincinnati, Chicago & St. Louis Railway 4 per cent preferred stock, carrying the right, after 3 per cent is paid on common, to an extra 1 per cent. The company is now paying 5 per cent on its preferred and 4 per cent on its common stock. Allis Chalmers Company preferred is entitled to 7 per cent, and, after 7 per cent is paid on the common, the preferred is entitled to 1 per cent extra.

Income from preferred stock may vary in another way through a right of conversion into common stock. If a preferred stock is *convertible*, its holder may under certain conditions exchange it for common stock. This is ordinarily called a "privilege" of conversion. Since it is stipulated for and cannot be taken away, it is really a right rather than a privilege. It may be exercised immediately, or after a certain date, or within certain dates, according to the conditions. It may be exchangeable par for par, or in any other proportions provided. Since the right has not been given to preferred stocks nearly so often as to bonds, the conversion idea will be discussed more fully in connection with bonds. It is enough here to note that it is applied to stocks. Of course the conversion of a preferred stock into common does not make nearly so great a change as the conversion of a bond into stock. As the preferred stock generally possesses equal voting power with the common, conversion of the stock would not ordinarily make any change in the quality of control, except as affected by the quantity of each class outstanding. The holder gives up a lesser risk in favor of a greater income.

The Associated Merchants Company has an issue of 5 per cent first preferred and one of 6 per cent second preferred. The holder of the first preferred may exchange into either common or second preferred. Dominion Iron and Steel Company has an issue of 7 per cent preferred, convertible at any time into common. Dominion Coal Company preferred did carry a right of conversion which expired May 1, 1910. Allis Chalmers preferred is convertible into common any first of May up to and including May 1, 1921.

The element of lessened risk gives preferred stock its name. Of all the stock in the corporation that part which is "preferred" must receive dividends to a certain amount before the corporation can pay any on that other part, which in distinction from the preferred is called "common." If the corporation has no preferred shares, its stock is still frequently called common to indicate the lack of preference. Such nomenclature, however, seems unnecessary.

If the corporation does not pay the stated rate of dividend on the preferred stock in any year or series of years, and, by stipulation, it must make up the deficiency out of earnings of later years before it can pay any return to deferred shareholders, the stock is called "cumulative." Otherwise it is "non-cumulative."

In the event of a dissolution of the corporation all shareholders without special stipulation, both common and preferred, will share equally in the distribution of assets. The preferred stock may carry the stipulation, however, that preferred shareholders are entitled to receive up to the par value of their stock in any distribution of assets before the common shareholders are entitled to anything. In that case the stock is said to be "preferred as to assets." By statute preferred stock may be preferred as to assets without such special stipulation. This is the case in New Jersey.

Ordinarily the right of control vested in preferred stock ranks equally with the amount of control vested in the common. Sometimes the control vested in the preferred is not as great as that vested in the common. Usually in such cases so long as the income stipulated for remains unimpaired the preferred shareholders accept a less control. If the control vested in the preferred is greater than that vested in the common, usually it is for some specific purpose; especially, the preferred often can veto any increase of bonds or the amount of the preferred itself. Such an extra power obviously protects the lesser risk the preferred shareholder stipulates for. It will be noted that in many cases the extra control represents a special caution of takers of securities issued as a result of a reorganization.

Examples of this veto power are: —

Atchison, Topeka & Santa Fé: A majority of *all preferred outstanding* must consent to any increase in preferred or to any new mortgage. (Reorganization.)

Erie: A majority of all *first* preferred outstanding must consent to any increase in first preferred or any new mortgage. (Reorganization.) A majority of all *second* preferred outstanding must consent to any increase in either second or first preferred or any new mortgage. (Reorganization.)

Chicago, Great Western Railroad: A majority of all preferred outstanding must consent to any increase in preferred or any additional mortgage. (Reorganization.)

Southern Railway: A majority of all preferred outstanding must consent to any increase in preferred or to any mortgage in excess of $120,000,000. (Reorganization.)

Reading Company: A majority of all first preferred outstanding must consent to any increase in this stock or any additional mortgage; except that if the company paid 4 per cent dividends for two years it could issue 420,000 ($50) shares to convert the second preferred. A majority of all second preferred must consent to any increase of either first or second preferred or any additional mortgage. (Reorganization.)

As examples of cases in which not a majority of total stock, taking all classes together, is necessary for action, but a majority of *each* class must approve, may be cited: St. Louis & San Francisco first and second preferred and common and Oregon Railroad and Navigation Company preferred and common. In both cases a majority of *each* class must consent to the issue of further stock of equal rank, or the placing of any mortgage. This, however, is the common situation.

Two thirds of all preferred stock outstanding of the Norfolk & Western Railway must consent to any increase in preferred or any new mortgage. (Reorganization.)

If the Wisconsin Central Railway should fail for two successive years to pay 4 per cent dividends on its preferred, the preferred shareholders would have a right to elect a majority of directors. This is another example of special control vested in the preferred further to safeguard the lessened risk.

Control vested in preferred stock may have a *limitation* in that the corporation, on the vote of the common stock, may have the right to redeem the preferred under stipulated conditions at a stipulated price. In that event the stock is called "redeemable." Such a limitation takes away much of the value of the stock for purposes of control of the corporation, but does not affect the power of the preferred shareholders to protect their interest while the stock remains outstanding. Common shareholders exercised their right to redeem the preferred in a most dramatic way in the course of the conflict in 1901 between E. H. Harriman and J. J. Hill for railroad ownership in the Northwest. A group of men known as the "Harriman-Kuhn, Loeb Syndicate" endeavored to get control of the Northern Pacific Railroad. The road had outstanding $80,000,000 common stock and $75,000,000 preferred. J. J. Hill and J. P. Morgan owned common stock amounting to $26,000,000. Harriman and his backers bought into Northern Pacific until they had $37,000,000 common and $42,000,000 preferred, — a clear majority of $1,500,000 of all the stock of the road. The Hill interests bought further into the road until they had

$42,000,000 common, — a clear majority of $2,000,000 of the common. Then the Harriman people discovered their weakness. The preferred possessed equal voting power with the common, but was subject to redemption at par up to January, 1917. The Hill interests, having a majority of the common, announced their intention of redeeming the preferred! They did redeem it. All the Harriman people got out of their contest was one representative on the Northern Pacific board.

The Southern Pacific Company had an issue of nearly $75,000,000 ($74,866,463) 7 per cent preferred stock, redeemable at the option of the company at 115 at any time between July, 1905, and July, 1910. The company redeemed the stock in July, 1909. This stock, by the way, was convertible; holders had the right after July, 1905, to convert into common at par. When the company called the stock for redemption, it gave holders the choice of taking the redemption price of 115, of converting into common under the convertible right, or of taking 4½ per cent bonds par for par plus $20 in cash for each share.

Whether one large preferred stock issue, that of the Southern Railway, is redeemable or not, is perhaps open to question and has not been officially decided.

The May Department Stores Company, operating department stores in St. Louis and other cities, put out a preferred issue, for the retirement of which they created a sinking-fund. The issue amounted to $5,000,000. The company must set aside $150,000 yearly before any dividends are paid on the common, in order to retire preferred at not over 125, at which the stock is callable. For the first three years the company may add the sinking-fund to the general surplus. It could not, however, declare a dividend on the common till it had $250,000 in the special surplus, nor more than 4 per cent in any year till the special surplus account amounted to $1,000,000.

Examples of issues of *redeemable* preferred stock are: — Erie first preferred, redeemable at par; Erie second preferred, redeemable at par; St. Louis & San Francisco first preferred, redeemable at par; St. Louis & San Francisco second preferred, redeemable at par; Dominion Coal, redeemable at 115; American Smelters Securities Company, subject to call on any interest date after 1930. National Lead Company, redeemable at par beginning 1910; The Mackay Companies, redeemable at any time at 106; American Cotton Oil Company, subject to call at 105; Borden's Condensed Milk Company, subject to call at 110.

Instead of having extra control the preferred may have less control vested in it than the common. The American Tobacco Company preferred shareholders had no right to vote at any meetings except those convened for increasing or decreasing the capital stock, dissolving the corporation, "or passing upon other matters with respect to which the statute expressly gives the power to preferred stockholders to vote." The American Smelters Securities Company gives its preferred shareholders no voting power unless dividends for one year remain unpaid.

Since it is the essential idea of a stock that its holders possess immediate control of the company, such securities as these are on the border-line between stocks and bonds. They help show, however, the possibilities in a corporation of dividing and recombining the elements of ownership. A stock like Dayton & Michigan Railroad preferred, which carries no voting power whatever, is hardly a stock at all, but essentially an income bond.

So far consideration of particular stocks has brought out only special features of each. Several representative stocks, giving all the features of each, are: — Boston & Maine Railroad 6 per cent non-cumulative preferred; Atchison, Topeka & Santa Fé Railway 5 per cent non-cumulative, preferred both as to dividends and assets, requiring consent of a majority of the preferred outstanding for any increase in the preferred or any further mortgage; Interborough Metropolitan Company 5 per cent cumulative, preferred both as to assets and dividends; Minneapolis, St. Paul & Sault Ste. Marie Railway 7 per cent non-cumulative, sharing equally with common after common pays 7 per cent; The American Cotton Oil Company 6 per cent preferred, non-cumulative, subject to call at 105; Associated Merchants Company 5 per cent cumulative first preferred (preferred both as to dividends and assets), convertible at par into either common stock or second preferred.

On first thought it may appear that the only control bonds have is purely contingent. If the corporation does not pay interest the bondholders possess either a right to have a receiver appointed to manage the property in their interest, or to foreclose and sell the property for their benefit; that is, they have a right to assume the entire control, but only under certain contingencies. As a matter of fact, the corporate mortgage has become a most elaborate document, and through it the bondholders secure to themselves very substantial amounts of actual present control. This does not mean that bondholders have a right to appear at shareholders' meetings and cast a vote in any way. The control they possess is of a definite kind and consists not of the right to initiate policies, but rather of limitations, in favor of the bondholders, on the power of the shareholders. If the corporation has only voting stock, the general law and the corporation's charter lay down the only limitations on the shareholders' control or direction of the business. When the corporation issues bonds, however, investors will probably insist, as a condition precedent to purchase, on limiting within narrower lines the scope of action of the shareholders.

The very issuing of bonds is in a way a granting of control to the bondholder. It compels the shareholder to be in the position of a borrower for the term of the bonds. It gives the bondholder control to the extent that he can for a term of years insist that a certain part of the corporation's income be used in a special manner, namely, to pay interest on his debt. If the bonds are callable the shareholder has refused to part with so large an amount of control as giving the right to the stipulated income for the maximum term involves. Suppose an issue of 5 per cent 20-year bonds callable at any time as an entire issue at 105. In the absence of other limitations the shareholders can by paying the amount stipulated cancel all the ownership of the bondholders.

As illustrations of the way in which a part of control may rest in the bondholder through limiting the power of the shareholder, we may call attention to several issues. Armour & Company has outstanding $30,000,000 real estate first mortgage 4½ per cent 30-year bonds, due June 1, 1939. They are a first mortgage on real estate valued at $40,000,000. The mortgage provides that the unincumbered quick assets of the company and its auxiliary companies shall at all times exceed the aggregate debt of the company and auxiliary companies, including the outstanding bonds of this issue. The company can pay dividends only from earnings made subsequent to the fiscal year ending October 24, 1908. Such a stipulation gives the bondholders a very definite share of control in the conduct of the business. Shareholders have parted with control to such an extent that they can create further indebtedness only under special conditions, namely, that the corporation has quick assets of a certain amount. They have so far parted with control that they cannot realize on their quick assets to an extent that will reduce them below a certain proportion.

American Telephone and Telegraph Company has 4 per cent debenture bonds, due March 1, 1936, outstanding to an amount of $22,724,000 out of an original issue of $150,000,000. They are convertible into common stock at 126.44 before March 1, 1918, and are redeemable after March 1, 1914, at 105. The company cannot create any mortgage, or any collateral trust indenture covering securities now owned, or purchased with proceeds of these bonds, without including these bonds as also secured on the new assets. During the term of the bonds the company cannot have outstanding unsecured bonds or notes in excess of $150,000,000, except obligations payable within one year not exceeding $10,000,000, unless additional money from the sale of stock shall be paid into the treasury, in which case the company may issue additional unsecured bonds or notes to an amount equal to the money paid in. So the bondholders again in this case exerçise control to the extent of limiting the debt-creating power of the shareholders.

Bondholders of the Westinghouse Electric and Manufacturing Company exercise control in many directions. The company has an issue to the authorized amount of $20,000,000 of 5 per cent bonds, due January 1, 1931, convertible into assenting (now common) stock at 200. These are debenture bonds and contain a covenant that no mortgage shall be placed on the properties described in the trust indenture. The company cannot issue notes in addition to the outstanding $6,000,-000 except against after-acquired securities of the appraised value of 120 per cent of the new notes issued. It cannot issue further bonds unless net earnings are at least double the interest charge of the company and its subsidiaries, including the securities proposed to be issued. The company may issue these bonds, up to an amount of $5,000,000, beyond the $20,000,000 immediately authorized, equal in amount to the proceeds paid in from the sale of new stock. Quick assets must equal the aggregate amount of indebtedness, including the indebtedness of subsidiary companies exclusive of collateral notes. Indebtedness outside of the bonds cannot exceed 25 per cent of the par of the bonds outstanding. The company cannot issue any stock entitled to preference over the assenting (now common) stock. It cannot sell any stock for less than 10 per cent below the market price of the assenting (now common) stock.

Chicago Bell Telephone Company first mortgage 5 per cent bonds, due December 1, 1923, $5,000,000 outstanding, $50,000,000 authorized, carry control in several respects: 1. The company cannot issue bonds additional to the $5,000,000 for one year after their issue; then not in excess of $5,000,000 per annum. Such a provision is common. It is an assurance to the underwriters or purchasers of the security that the company will not throw more bonds on the market within a given period. This gives time for the public to absorb the issue, and guards against the price-depreciating influence of an additional supply of the security, which is particularly acute if the first amount issued is not fully absorbed. It also gives the corporation a chance to get the benefit of the capital raised by the bonds already issued and reflect it in larger earnings, so that the price of the security will not be further depressed by lowering the percentage of earnings above fixed charges. 2. Total outstanding bonds of the company must not exceed 50 per cent of the value of its property, or 60 per cent of the value of its real estate. 3. After the company has $15,000,000 of these bonds outstanding, it cannot issue further bonds to exceed 75 per cent of the cost of additional improvements and extensions.

Of the Nashville (Tennessee) Railway and Light Company Refunding and Extension 5's, due July 1, 1955, $2,000,000 are issued, $6,000,000 are reserved to retire underlying bonds, and $7,000,000 are issuable only: (1) For 80 per cent of the cost of improvements and additional property acquired since January 1, 1908; also on condition that (2) the outstanding bonded debt must not exceed five times gross earnings for previous twelve months; (3) net for previous twelve months must equal at least one and one half times total interest charges; (4) at least 10 per cent of gross earnings for the preceding twelve months must be expended for maintenance and included in operating. Birmingham (Alabama) Light and Power Company 6's contain similar provisions.

York (Pennsylvania) Railway 5's, due December 1, 1937, authorized to the sum of $10,000,000 and outstanding to the amount of $3,400,000, stipulate: "Of the balance of the bonds $2,000,000 are reserved for the specific purposes provided in the mortgage and the remaining bonds, $4,600,000, can only be issued at the cost price of the purposes specified, provided the net earnings, after payment of all interest and taxes for twelve months prior to the date of issuance, shall be at least equal to interest and taxes for one year on all outstanding bonds and any or all of the purposed additional bonds."

As another example of control vested in bonds for the purpose of limiting the power of the shareholders to create debt, the National Enameling and Stamping Company has authorized and outstanding $3,500,000 refunding, first mortgage real estate, sinking-fund 5's, due June 1, 1929, which provide that the liquid assets of the company must at all times equal the aggregate debts of the company, including outstanding bonds of this issue.

Peoria Railway Company first and refunding 5's, due serially, February 1910–26, authorized $3,600,000, contain a stipulation controlling the disposition of part of the earnings in the covenant of the company to maintain a depreciation and maintenance fund from 1909 to 1925 to aggregate $1,865,000. The serial maturity retires only 40 per cent of the issue before 1926.

So far the examples given have illustrated only how in particular cases the bondholders of a corporation exercise control. The nature and amount of control that they exert vary according to special stipulations. Bonds, however, divide into several distinct classes, each with its identifying control characteristic. Only such general characteristics will enter into the further discussion. Of course, in addition to these, each issue, as already shown, may carry further peculiar restrictions of the shareholders' power. Of these classes (1) mortgage, (2) debenture, and (3) income bonds naturally group together.

A mortgage bond, as the name indicates, represents a fraction of a mortgage placed upon part or all of the property of the issuing corporation. It gives the strongest kind of contingent control. Under the stipulations of the mortgage, in case of failure of the corporation to pay principal and interest when due, or on any other default of like rank, bondholders, acting by such majorities and in such manner as the mortgage provides, can take possession and operate the property themselves, or sell it under their right of foreclosure. In this way they can directly take the mortgaged property entirely away from the shareholders.

So far as the incidents of ownership are concerned, obviously a second mortgage differs from a first in accepting a greater risk and demanding a compensating greater income. The control it exercises is the same in kind as the control of a first mortgage: namely, the actual present control in limiting the freedom of action of the shareholders by the obligation to pay principal and interest, and complete contingent control, in case the shareholders' management should fail in this obligation. The contingency giving the second mortgage bondholder active control happens sooner than the contingency giving the first mortgage bondholder active control. The same principles apply to a third or any subsequent mortgage.

It should be mentioned here that a bond may have the security of a first mortgage as to part of the property, and a second mortgage as to the rest. Such bonds do not call for special discussion at this time. They are generally recognizable under names like "first and refunding mortgage bonds," or "first and consolidated mortgage bonds."

Debenture bonds, on the other hand, do not bestow upon their holders the powerful right to contingent direct control conferred by a mortgage right of foreclosure. The holder of a debenture, speaking broadly, and assuming the absence of special stipulations, has only the rights of a general creditor, and has less power than the mortgage bondholder to take control from the hands of the shareholders. Usually the debenture bondholder has the advantage of particular stipulations that put him in a stronger position than an ordinary creditor, but still leave him far from being as firmly intrenched as a mortgage bondholder. The existence of debenture bonds usually indicates one of two very different situations, — either from the unavailability of mortgages, which seldom are considered of any advantage beyond the second and almost never beyond the third, or because the corporation is so strong that it does not need to offer a mortgage security. As an example of debenture bonds may be mentioned the New York, New Haven & Hartford convertible $3\frac{1}{2}$'s, 1956, and various other issues of this company. It may be noted that this corporation has no mortgage bonds of its own outstanding. Subsidiary companies have mortgage bonds. The Boston & Maine has debenture $4\frac{1}{2}$'s, 1929, and other debenture issues. This corporation also has not issued any direct mortgage bonds. The Boston & Albany has debenture 4's, 1933, and others. This road (now leased to the New York Central) presents a case of a line financed, as it stands at present, without any mortgage. The Chicago, Milwaukee & St. Paul has debenture 4's, 1934, $28,000,000 issued, $50,000,000 authorized. The Chicago & Northwestern 5's, 1933 ($5,000,000). The New York Central & Hudson River Railroad 4's, 1934 ($34,000,000).

Income bonds give the holder almost no control, either immediate or contingent. The stipulation of their issue is only to pay interest if earned. So failure to pay interest, unless earned, does not confer upon the holder any right to take control from the owners of the stock. Obviously the income bondholder has less control than the owner of any other security we have discussed; and together with this minimum of control he assumes considerable risk. It results that the income bondholder may find that he has purchased a lawsuit rather than a security.

The Central of Georgia Railway furnishes one of the best-known examples of the income bond. That corporation has outstanding three issues, all put out in 1895 and due in 1945. They are non-cumulative and bear interest, payable only if earned, not exceeding 5 per cent in any one fiscal year. As a matter of fact, the corporation did not pay the full 5 per cent on the first incomes till 1901, paid only 3 per cent in 1902, then 5 per cent till 1908. It did not pay anything on the second incomes till 1904, then 2 per cent; 5 per cent in 1905 and 1906; 3.73 per cent in 1907; then entirely stopped paying. On the third incomes it paid 5 per cent in 1905 and 1906, nothing till then and nothing after. The income bondholders took the matter into the supreme court of Georgia. An auditor appointed by the court found that the railway company had wrongly kept back $542,000 net income of a subsidiary, the Ocean Steamship Company, and other items, making a total of $860,909 available beyond what the corporation itself had shown. The court thereupon held the company liable for full interest on the three classes of income bonds from earnings of 1906–07, and in February, 1911, the corporation paid the balance of 1.27 per cent on the second preferreds and the 5 per cent on the thirds.

In November, 1909, the bondholders again brought action to recover full income interest on the three classes of bonds from earnings of 1907–08. In May, 1911, the company offered to pay, and did pay in June, the full income on the firsts for 1908, and 2.821 per cent on the seconds, and for 1909 and 1910, 2.312 per cent on the firsts. These payments were made without regard to any further claims the income bondholders might make.

It is interesting to set down the operating ratios in comparison with the interest payments on these income bonds before the decision of the court.

	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09
Interest														
First incomes	1.5	2.25	2	2	3.25	5	3	5	5	5	5	5	0	
Second incomes	0	0	0	0	0	0	0	0	2	5	5	2.73	0	
Third incomes	0	0	0	0	0	0	0	0	0	5	5	0	0	
Operating ratio					66	69	71	74	73	72	70	76	74	79

These high operating ratios, especially the 76 per cent in 1907, the 74 per cent in 1908, and the 79 per cent in 1909, would raise a question, at least, if the company, in addition to holding back the net earnings of its subsidiary, were not also, under the guise of maintenance (operating), sinking earnings in really capital expenditures expected to show results later in the form of dividends on stock.

We have gone into this at such length to show a case of ill-advised apportionment of control, risk, and income. Omitting the question as to whether the anticipated income would compensate for the risk, very apparently the investors who bought the bonds should not have taken the risk without getting more control. If they had insisted on either the contingent control of a right of foreclosure, or the active control of voting power, they would not have got into a position offering such possibilities of disputes.

Other examples of income bonds are: Florida East Coast Railway, \$20,000,000 (\$25,000,000 authorized) 5 per cent non-cumulative second mortgage, due 1959; New Orleans and Northeastern Railroad, \$1,500,000 4½ per cent non-cumulative income mortgage, due 1952.

Apparently the mortgage lien was stipulated for in these cases to give the right of foreclosure on failure to pay principal. Failure to earn and pay interest does not give a right of foreclosure. All these bonds present the astonishing feature of being non-cumulative without any active control.

Convertible bonds present a further class with respect to control. We have already discussed the somewhat limited class of convertible preferred stocks. The number of convertible bonds is much greater and offers a more significant form of security. When a holder converts a preferred stock into a common, he ordinarily affects only his risk and income and does not change the quality of his control. If a convertible bondholder, however, changes his bonds into stock, he jumps immediately from a control that is merely restrictive or contingent to a control that is active and immediate. He has also probably made a greater change in his risk than a converting preferred shareholder.

Conditions governing conversion are numerous, and the profitableness of converting under allowed conditions is a matter of calculation. Convertible bonds offer a large enough field for a volume to themselves. We shall examine only several prominent issues to get an idea of the working of the class. The purpose of making any security convertible into one of junior rank is to gain present safety combined with a chance to get some of the benefit of speculative profits on condition of giving up the preferred position.

We would call attention to the fact that the "participating" idea combines present safety in the senior security-holder with the benefit of sharing future speculative profits. The holder of a participating security does not have to give up the preferred position to enjoy the greater income, and in that respect the common shareholder has made a less advantageous bargain. In the case of a convertible security, if the holder takes a share of the enhanced profits, he has to give up his advantageous position as to risk. The common shareholder has then lost some of his profits, but has gained a position of less risk. Take a concrete case to show the point: Suppose two corporations, A and B, capitalized: —

Corporation A	*Corporation B*
$8,000,000 5 per cent convertible bonds.	$8,000,000 5 per cent participating bonds.
5,000,000 common stock.	5,000,000 common stock.

Suppose in corporation A the bonds may be converted into common at 150, and that when the corporation makes 10 per cent on its total capitalization the stock does go above 150 in the market.

In corporation B the bonds participate equally with the common above 5 per cent.

Assume that in both corporations earnings advance to 10 per cent on the total capitalization, and in corporation A none of the bondholders convert. Then: —

Corporation A		*Corporation B*	
Net	$800,000	Net	$800,000
Interest	150,000	Bondholders get	300,000
Surplus	650,000	Shareholders get	500,000
Bondholders get	5 per cent	Bondholders get	10 per cent
Shareholders get	13 per cent	Shareholders get	10 per cent

In corporation A the bondholders cannot share directly in the prosperity of the company without giving up their priority. Suppose they all convert. They get 5 per cent more income and the shareholders 3 per cent less and all security-holders get 10 per cent, the same as in corporation B.

Now suppose a severe depression in the business sets in, and earnings on the total capitalization drop to 3 per cent. Then: —

Corporation A		*Corporation B*	
Net	$240,000	Net	$240,000
Former bondholders, now shareholders, get	3 per cent	Bondholders get	5 per cent
Former shareholders and still shareholders get	3 per cent	Shareholders get	1.8 per cent

If net earnings should drop 2 per cent more, they would not be sufficient to pay the 5 per cent to bondholders in corporation B. The shareholders' equity is wiped out, and the bondholders would get control. In corporation A the former shareholders would still be getting 1 per cent and cannot be wiped out.

So much for the advantage to the common shareholder of the convertible bond over a possible bond with a participating stipulation. It has the disadvantage of projecting another element of uncertainty into the affairs of the corporation. It adds something incalculable from the financial scheme to the already many incalculable considerations in the nature of the business. As a matter of fact, for example, not every convertible security-holder gives up his priority in order to gain a greater income. Very many do not. The directors of the corporation cannot calculate how many will. They cannot foresee just how much will be required for interest, and consequently how much available for dividends and how many shares it will have to be distributed among. On an actual conversion also the common shareholder suffers a lessening of the quantitative control in his stock. In the case of corporation A we have just taken, the shareholder having 10,000 shares starts out with one fifth of the active control. If all the bondholders convert, this owner of 10,000 shares finds that he now has only one eighth of the active control. This makes a very appreciable difference in the value of his holdings from a control standpoint.

Some specific examples of convertible bonds are:—

Atchison, Topeka & Sante Fé convertible debenture 4s, due June, 1955. They are redeemable on any interest date after published notice at 110 and interest, and are convertible at par, at any time prior to June 1, 1913, into common stock at 100. If they are called for redemption in the mean time the conversion privilege may be exercised, but not later than May 31, 1913, and shall cease upon the day preceding the one named for payment. At the time of writing, the stock is on a 6 per cent dividend basis and selling at 103. The right of conversion is operative. A thousand-dollar bond can be exchanged for ten shares of stock worth $1030. We should expect to see the bonds selling at 103. As a matter of fact, they are selling at $104\frac{3}{4}$. Convertible bonds do not always follow the price of the stock down. Notice, too, that it does not follow that a convertible security will always be converted as soon as it is profitable to do so. These Atchison bonds cannot, at the time of writing, be considered worth more than par on their merit as an investment.

Delaware & Hudson Company convertible debenture 4s, due June 15, 1916, are convertible up to June 15, 1912, into common stock at 200. The stock pays 9 per cent and is selling at about 162. Since the bonds are worth on their investment merit $97\frac{1}{8}$, the price they are selling at, the stock would have to advance above 194½ plus commissions in order to reach a profitable conversion point.

Union Pacific Railroad Company convertible debenture 4s, due July, 1927, are redeemable as a whole, but not in part, on or after July 1, 1912, at any interest date after ninety days' notice, at 102½. The right of conversion continues up to thirty days of the date of redemption. They are convertible at par, on or prior to July 1, 1917, into common stock at 175. The bonds are selling now at 101, somewhat above the present investment value, though the stock is selling at only 161, or considerably below the par of conversion.

Pennsylvania Railroad Company convertible debenture 3½s, due October, 1915, are redeemable at 100 and interest at any interest date on ninety days' notice, with a right to convert up to thirty days before the redemption date. They are convertible at any time into stock at 75 (par value, 50), equivalent to 150 as quoted on the New York Stock Exchange. The bonds are selling at 96¼, the stock at 120¼. The bonds would have to be at 80 in order not to lose by conversion with the stock at that price.

American Telephone and Telegraph Company convertible debenture 4s, redeemable March, 1915, or on any dividend date thereafter, on twelve weeks' notice, at 105 and interest, with the right of conversion continuing up to thirty days of date of redemption. They are convertible, up to March 1, 1918, at par into stock at 126.44. The bonds are selling at 106, or away above the investment value.

II

TRADING ON THE EQUITY

WE shall borrow from an English usage the term "trading on the equity," as expressing better than any other brief phrase a fundamental business procedure. Its origin is from the expression "equity of redemption," which describes a mortgagor's right in the property he has mortgaged, that is, the right to get back the title he has pledged to the mortgagee as security for the capital advanced. The business man mortgages his property to get more money in his business, in order that he may engage in it on a larger scale, and all to the end that he may make a greater return on his own capital invested. To do this he undergoes the disadvantage that he must assume the greater risk. We shall not use the term "equity" in its strict legal sense, but in the common loose acceptance of the word in business, of any ownership in a property that assumes a larger risk than some other interest.

To take the simplest possible case, a manufacturer, say, finds that in good years he is making 15 per cent on his capital of $20,000.

He reasons that if he can make 15 per cent or even 10 per cent on capital in his business, he will make much more for himself by borrowing money at 6 per cent, or even at 8 or 9 per cent. Thereupon he goes into the money market in one form or another and finds that, though he can borrow $20,000 at a nominal face interest of 6 per cent, a further actual discount brings the real interest up to 8 per cent. He borrows $20,000 on these terms. Suppose he is able to continue making 15 per cent on the invested capital. Before borrowing, his affairs at the end of his fiscal year stood like this: —

Personal capital invested . . .	$20,000
Percentage earned on capital .	15 per cent
Return on capital	3,000

After borrowing, his annual statement would show: —

Personal capital invested . . .	$20,000
Borrowed capital invested . . .	20,000
Total capital	$40,000
Percentage earned on capital .	15 per cent
Total return on capital	$6,000
8 per cent on borrowed capital .	1,600
Return on personal capital . . .	$4,400

That is to say, by borrowing at 8 per cent he has increased the return on his own investment from 15 per cent to a point where it now makes him 22 per cent.

Suppose, however, an especially bad year, either in business of that particular kind, or in general business conditions, comes along, and the proprietor can make his enterprise earn only 5 per cent on the capital invested. How would his annual statement stand then? It would show: —

Personal capital invested . . .	$20,000
Borrowed capital invested . . .	20,000
Total	$40,000

Percentage earned on capital .	5 per cent
Total return on capital . . .	$2,000
8 per cent on borrowed capital .	1,600
Return on personal capital . .	$400

In this bad year the proprietor has made only $400, or 2 per cent on his own capital, as a result of borrowing, whereas, if he had not borrowed at all, he would have made 5 per cent, or $1000. In the bad year he has lost $600 by trading on the equity against the $1400 he made in the good year by following the same policy. Of course the proprietor expects that the gains of his good years will much more than offset the losses of his bad years.

Notice that in the bad year the proprietor's equity in the property "protected" the lender, so that he received his full 8 per cent in the bad year when the capital as a whole yielded a return of only 5 per cent, and, moreover, that, he has not had the worry of conducting the business in a year of comparative misfortune.

In a very elementary way this explains the whole principle of trading on the equity. It also illustrates a simple case of the adjustment of risk and control dwelt on in the chapter on "The Instruments of Finance."

The trader on the equity in the case of a corporation is the common shareholder. Holders of other corporation securities are taking shelter under the protection of the equity of the invested capital of the common shareholders, and the common shareholder takes advantage of the protection he offers by his capital to get other funds into the business on terms that he expects will make his own capital more profitable than it would be otherwise.

Stated in the simplest possible manner, a corporation disburses its gross income in the form of: —

Operating expenses (where, for our present purposes, we will include taxes as well as maintenance, etc.).

Interest.

Dividends.

We by no means take this as a model of accounting practice, but simply to keep the elements entering into trading on the equity down to their simplest terms.

Safety or danger in this manner of conducting business depends on the interplaying relations of gross income, operating expenses, and interest charges, and the range of fluctuation of "gross" and "operating."

Net income offers the first and immediately significant figure. Its amount and fluctuation, however, depend directly on the amount and range of fluctuation of gross income in relation to the amount and range of fluctuation of the percentage of the gross income used in operating expenses. We may call this the "business risk," because it depends on the nature of the business and the ability of the management. Though no financial plan can affect either, the business risk should be a controlling influence in the arrangement of any scheme of financing an enterprise.

Surplus, which is the fund out of which dividends may be paid, gives the next and secondarily significant figure, and the one directly affecting the shareholder. It depends on the fluctuation of net earnings in relation to the amount that interest charges consume. We may call this the "financial risk" as distinct from the business risk. The thinner the equity or margin the shareholder works on, the greater the risk that the shareholder runs and that he places on the bondholder.

To carry on the illustration already used, suppose the proprietor of the business decided to extend his borrowing to the utmost limit of his credit and found that he could raise $80,000 additional capital. The lenders are taking a greater risk and insist on a greater income, say 10 per cent. This is a regular principle. As the equity gets thinner, interest charges increase more rapidly than the increase in the capital advanced. The more money the proprietor borrows, the more interest he has to pay on each borrowed dollar.

Now the annual statement will show:—

Personal capital invested	$20,000
Borrowed capital invested	80,000
Total capital invested	$100,000
Percentage earned on capital	15 per cent
Total return on capital	$15,000
Ten per cent on borrowed capital	8,000
Return on personal capital	$7,000

—or 35 per cent on the personal capital invested. When the proprietor had borrowed only $20,000, he made 22 per cent on his own capital. By larger borrowing he has made a clear gain of 13 per cent more on his personal funds.

Heretofore the proprietor, however, could suffer a decline in the prosperity of his business that reduced earnings from a basis of 15 per cent to a basis of 5 per cent on the total capital invested in the business and still make something on his personal capital. Suppose now that the earnings on invested capital fall, not to 5 per cent, but to 8 per cent. Then: —

Total return on capital . . .	$8,000
10 per cent on borrowed capital .	8,000
Return on personal capital . . .	$0,000

If the return on invested capital should decline to 5 per cent, the proprietor would face an annual deficit of $3000, and very quickly would have to go into bankruptcy.

Business risk, as we have seen, depends on: the amount of gross; its range of fluctuation; the percentage of gross used in operating expenses; the range of fluctuation of this percentage. In their very nature businesses vary greatly in these respects.

We shall take several corporations, engaged in different kinds of business, to illustrate these variations caused by the nature of the enterprise. Let us first consider fluctuations in gross earnings. The five-year period chosen for illustration includes the year 1908 so as to get the effect of the change from a time of business activity to a time of business depression. A plus mark indicates an increase and a minus mark a decrease in gross earnings over those for the preceding year.

Percentage of the fluctuation in gross earnings over preceding year

	1905	1906	1907	1908	1909
United States Steel Corporation		+19	+ 8	−37	+34
American Woolen Company	+23	+ 7	− 8	−37	+60
Denver and Rio Grande Railroad Company	+ 5	+ 9	− 1	− 6	+ 4
Detroit Edison Company (electric lighting)	+15	+33	+37	+23	+23
Twin City Rapid Transit Company (operating electric railway in Minneapolis and St. Paul)		+19	+ 7	+ 6	+ 9
Shawinigan Water and Power Company (hydraulic electrical power company) .		+11	+63	+22	+16

Without looking at the balance-sheets, any one would come to the general conclusions about probable variations in the range of fluctuation in gross earnings of the several classes of business used for illustration which the figures given actually show. Industrial corporations feel a business depression most strongly. People do not embark on new enterprises. This fact immediately causes the consumption of materials to fall off. Established businesses economize as closely as possible and cause a still further decline in the demand for materials. Such conditions show with special acuteness in the earnings of a company like the United States Steel Corporation.

In times of business depression employment is less assured; if the situation is prolonged, wages may decline. As a result people economize. They do not curtail in the daily expenditure of nickels and dimes. Such outlay has become a habit. They cut expenses in the irregular, unfrequent payments of larger amount. Clothing comes under this head. People make the old things "do." That fact accounts in part for the comparatively wide fluctuation in gross earnings of corporations like the American Woolen Company. Moreover, in times of depression the competition for business becomes keener, the industrial corporation in order to keep its share cuts prices, and the lower prices cause a further decline in gross income.

The lessening volume of business done by the industrial corporations directly affects the earnings of the railroads. A considerable part of the transportation business comes from industrial products. Much of the other business does not, however, fall off in the same proportion. A depression that results from "over-extension" does not cause poor crops. Railroads may have as large a tonnage of agricultural products as ever. So we should expect to find some fluctuation in the gross earnings of a railroad, but not as great as in those of an industrial corporation.

When we come to public service corporations, such as street railway companies and electric lighting companies, we should not expect earnings to decline as much as in the case of the classes of corporations already discussed. Such part of the expenditure of nickels in street-car rides as is not a necessity is a habit, and, moreover, a growing habit. The street railway continues to charge a nickel — just as before. It does not, like an industrial corporation, have further to reduce profits, already reduced because of a smaller output, by cutting prices. It is a matter of fact, too, that people do not lessen their consumption of such things as electric lighting. The price for this service, also, is not cut during times of depression. Earnings of public service corporations, therefore, do not decline; they rather advance. Though at some future time the rate of advance may show a greater check than now during a trade dullness, earnings from these businesses probably never will show marked declines in times of depression. All this means that in arranging to finance a corporation, the promoters or managers must consider the nature and probable fluctuations of gross earnings in the business it engages in.

We have had to go into this discussion of variations of gross earnings first in order properly to develop the general subject. It is the fluctuations in net earnings, however, that fully represent the business risk, and net results from the relation of gross earnings and operating expenses. If operating expenses consume a large proportion of gross earnings, the fluctuation in gross constitutes a greater business risk than in the case of a corporation in which the proportion of operating expense is smaller. This increase in the business risk results from the fact that a corporation cannot cut operating to keep the proportion of operating the same in the face of a declining gross. It has built up an organization to conduct the business on the larger scale. It cannot reduce this organization as rapidly as the business falls off. Having once built up the larger plant, the corporation can never contract the organization temporarily to the scale of the diminished business. The very magnitude of the plant requires a larger force in proportion to the output. Moreover, wages do not fall as rapidly as prices. Let us compare the percentage of operating expenses with the fluctuations of gross earnings.

	Percentages of fluctuation of gross as compared with previous year					Percentage of gross used in operating for the year				
	1905	1906	1907	1908	1909	1905	1906	1907	1908	1909
United States Steel Corporation		+19	+ 8	−37	+34	75	74	77	80	79
American Woolen Company	+23	+ 6	− 8	−37	+60	90	91	93	96	98
Denver & Rio Grande Railroad Company . . .	+ 5	+ 9	− 1	− 5	+ 4	60	61	62	64	69

Even these figures showing a rising percentage of gross used in operating as the amount of gross declines do not tell the full truth. In the endeavor to keep down expenses during a period of falling gross income, corporations commonly do not keep their maintenance up to a proper and usual standard. If maintenance were kept up, the percentage of operating during a period of depression would be much higher than it is.

The increase in the operating ratio from 64 to 69 when gross earnings, so far from showing a decrease, show rather an increase of 4 per cent, seems to be an instance against the general principle that the operating ratio increases as the gross declines, and should therefore decrease as the gross tends to resume its former amount. Really it illustrates the fact that a corporation is likely to cut maintenance unduly during a period of depression and throw the burden of making up the maintenance on periods of activity. In the case of the Denver & Rio Grande figures, maintenance is responsible for a great deal more than its natural share of the increase in 1909. Maintenance was 16 per cent greater than for the preceding year against an increase of 9 per cent for all other operating charges.

If, then, a company manufacturing steel, and a company manufacturing woolens, undergo about the same degree of fluctuation in gross income, apparently the company manufacturing woolens at an average operating ratio of 92 per cent cannot safely trade on as thin an equity as a company manufacturing steel at an average operating ratio of 77 per cent. Neither can safely trade on as thin an equity as a railroad with a much narrower range of fluctuation of gross, and an operating ratio averaging 63 per cent.

Going on with the comparison of operating ratios, take in the same order as before the

	Percentage of fluctuation of gross compared with previous year					Percentage of gross used in operating for the year				
	1905	1906	1907	1908	1909	1905	1906	1907	1908	1909
Detroit Edison Company (electric lighting) . . .	+15	+33	+37	+23	+23	63	58	64	61	58
Twin City Rapid Transit Company (street railway in Minneapolis and St. Paul)		+19	+ 7	+ 6	+ 9	58	62	64	64	64

Thus it appears, if these may be taken as typical operating ratios, that an electric lighting company or a street railway company can safely trade on a thinner equity than a railroad, not because their operating ratios are less, but because they are not so subject to declines in gross earnings as a railroad.

To complete the comparisons, consider the operating ratios of a hydraulic electrical power company.

	Percentage of fluctuation of gross compared with previous year					Percentage of gross used in operating for the year				
	1905	1906	1907	1908	1909	1905	1906	1907	1908	1909
The Shawinigan Water and Power Company . . .		+11	+63	+22	+16		15	16	14	14

Here we have an operating ratio materially lower than those of the railway, traction, and lighting companies,—hardly one fourth as great, and scarcely more than a fifth of those of the industrials cited. This comes about from the fact that the labor cost is practically nothing in comparison with the capital invested, and from the substantial nature of the works, the maintenance is low. A hydraulic electrical plant represents a large amount of capital used in construction of an exceptionally solid kind. It runs almost automatically.

The promoters or managers of a company operating one would be safe in trading on a thinner equity than would be proper in almost any other common form of enterprise.

Having discussed the business risk, the interplay of the fluctuations of gross income and operating expense in determining net, we are now ready to consider what we have termed the financial risk. This, as we have stated, depends on the relation of interest charges to net earnings. Here, instead of having two variables, we have only one. Interest charges are a fixed quantity. We have seen that though operating expenses do not decline proportionately with gross, their actual amount does, nevertheless, fall. Interest, however, does not decline at all, but stays absolutely rigid. We have this situation, then, — with a declining gross an even more rapidly declining net, and a surplus declining more rapidly still towards vanishing point.

Suppose we have a corporation earning, gross, $1,000,000, operating ratio, 75 per cent, with gross liable during a period of depression to fall 35 per cent from normal, and its operating ratio to increase to 80 per cent. Let the corporation be carrying an interest charge of $125,000, or 5 per cent on $2,500,000 bonds. The result is: —

	Gross	Operating	Net	Interest	Surplus
Situation at normal	$1,000,000	$750,000	$250,000	$125,000	$125,000
Situation in depression	650,000	520,000	130,000	125,000	5,000

That is, during a period of depression with a decline in gross of 35 per cent, and an increase of 5 per cent in the operating ratio, net has declined 48 per cent, and surplus has declined 96 per cent.

Recalling the earlier part of this discussion, we remember that gross of the United States Steel Company fell off 37 per cent in the depression following the Panic of 1907, with a 3 per cent increase in the operating ratio, and gross of the American Woolen Company at the same time suffered a decline of over 45 per cent, with an increase in the operating ratio of 5 per cent. Obviously the shareholders of an industrial enterprise subject to such fluctuations as this cannot safely authorize the creation of an indebtedness large enough to reduce their equity to a point where in prosperous times the corporation will have to disburse half of net earnings in interest charges. If they do, they will be running a pretty good chance that during the next depression, not they, but a reluctant body of bondholders, not at all pleased at the authority thrust upon them, will be in control.

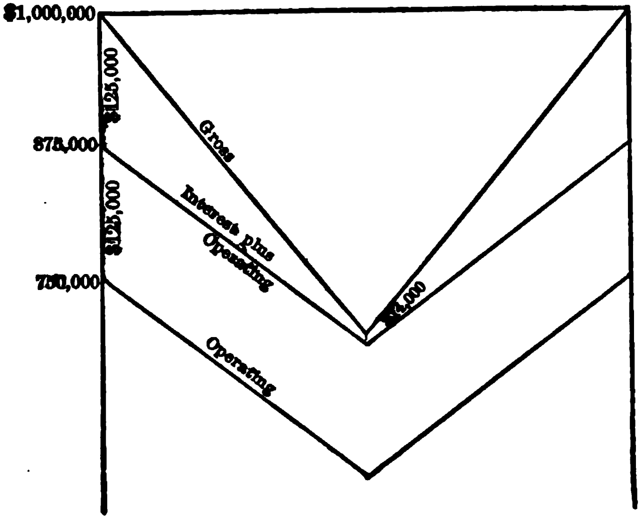
Suppose, in a corporation, the gross earnings of which are now, in normal times, $1,000,000, liable to suffer a decline of 35 per cent in gross during a period of depression in the business, that for every 7 per cent decline in gross the operating ratio will advance 1 per cent. The operating ratio is now 75 per cent. This approaches the case of the Steel Corporation.

Decline in gross	Gross	Per cent operating	Operating	Net	Interest	Surplus
	$1,000,000	75	$750,000	$250,000	$125,000	$125,000
7 per cent	930,000	76	706,000	224,000	125,000	199,000
7	864,000	77	665,973	198,927	125,000	73,927
7	804,357	78	627,398	176,959	125,000	51,959
7	748,052	79	590,961	158,091	125,000	33,091
7	695,688	80	556,550	139,138	125,000	14,138

The situation shown graphically (see diagram opposite) may become a little clearer.

The curve of operating will fall as the curve of gross falls, but not at the same rate. That part of the diagram between the curve of operating and the curve of gross represents the *amount* of net. Interest is a constant amount. The curve of operating, plus interest, indicating that part of earnings which, subtracted from gross, gives the *surplus*, results from simply adding the constant, interest, to the curve of operating, and gives a line exactly parallel to the curve of operating. Since the curve of operating does *not* parallel the curve of gross, but approaches it, the graph shows at a glance the effect on surplus of adding the constant, interest, to the operating.

If the managers of the corporation want to



trade on an equity as thin as that, or thinner, they can do so safely only by the creation of a preferred stock-issue. Then if earnings fall below the amount required to pay the preferred dividends, control vested in the common stock does not pass away from it. In actual practice it will become necessary to finance on preferred stock sooner than this. Generally speaking, bondholders want *assurance* that earnings will not fall enough to endanger their interests, and such assurance involves an *expectation* that they will not fall anywhere near that point. On the other hand, the preferred shareholder wants an *expectation* that earnings will not fall far enough to endanger the payment of his stipulated dividends. This also works out substantially what the common shareholder desires. He wants to feel *assured* that earnings will not fall to a point to endanger his retaining the control he possesses; he wants the *expectation*, at any rate if the preferred dividend is cumulative, that earnings will be sufficient to pay them.

Here we can properly discuss the size of issues as affecting control. Speaking of control in the first chapter, we discussed it for the most part from the standpoint that, if a share of stock of one class possessed equal rights of voting with a share of stock of another class, the control vested in the two shares was the same. We called attention, however, to the fact that if the issues of the two classes were of different sizes, the result might be that the control vested in one class differed essentially in kind from the control vested in the other.

For illustration suppose a corporation capitalized at: —

$2,000,000 common stock;
$1,000,000 5 per cent preferred stock;
$1,000,000 5 per cent bonds.

Assume, further, that net earnings amount only to $100,000, or just enough to pay the interest and the preferred dividend. It would be greatly to the advantage of the common shareholders for the corporation not to declare the preferred dividend, but to keep investing the surplus back in the property until such a time as the additional capital investment showed effect in earnings large enough to pay dividends on the common stock. Common shareholders have a majority of all shares, and directors elected by them in their interest might naturally enough adopt this course of conduct. If they should, it would be difficult to prove that they had not acted within their proper discretion.

Where the preferred shareholders are in the minority they should see to it that their stock is cumulative. If it is non-cumulative in the case just given, they might lose heavily for the benefit of the common shareholders. Even if cumulative they lose through the deferred benefit of the dividend, entailing a loss of interest or enjoyment of income during the period through which the dividends are delayed. The greater security through building up a protective margin of earnings in part offsets this.

Another less flagrant way in which the greater size of the common stock-issue in the assumed capitalization might work to the disadvantage of the preferred might arise out of a power in the common to create debt to the disadvantage of the preferred.

Capitalization assumed now stands: —

$2,000,000 common;
$1,000,000 preferred 5 per cent;
$1,000,000 bonds 5 per cent.

If the company earns, say, 6 per cent on its total capitalization, the corporation can distribute net in this way: —

Interest,	$50,000;
Preferred dividend,	50,000;
Common dividend,	140,000;

or, stated in approximate percentages, the amount of net taken by

Interest,	is 20 per cent;
Preferred dividend,	is 20 per cent;
Common dividend,	is 60 per cent.

Restated in terms of percentages payable on the several classes of securities: —

Bonds yield	5 per cent;
Preferred yields	5 per cent;
Common yields	7 per cent.

Suppose now the common shareholders, seeing that the corporation earns on the total capital a greater percentage than it pays for borrowed money, decide to trade on a little thinner equity and vote to issue $2,000,000 more 5 per cent bonds. We will assume that the company can continue earning 6 per cent on the total capital invested in the business. Capitalization now stands: —

$2,000,000 common;
$1,000,000 preferred, 5 per cent;
$3,000,000 bonds, 5 per cent.

Net earnings now amount to $360,000, distributed to

Interest,	$150,000;
Preferred dividend,	50,000;
Common dividend,	160,000;

and the approximate percentage of net taken by

Interest is	42 per cent;
Preferred dividend is	14 per cent;
Common dividend is	44 per cent.

Restated in terms of percentages payable on the several classes of securities —

Bonds yield	5 per cent;
Preferred yields	5 per cent;
Common yields	8 per cent.

Common shareholders have gained an additional 1 per cent return by reducing their equity.

How do the preferred stockholders come out in this transaction? Notice that the percentage earned, the margin of safety above the amount required for interest and preferred dividend, has fallen from 60 per cent to 42 per cent of net earnings.

See what will happen through a period of depression as the percentage in the net earnings the corporation can make on its total capitalization steadily declines from 6 per cent down.

Per cent earned net on capitalization	Amount when total capitalization ($1,000,000 bonds) is $4,000,000	Amount when total capitalization ($3,000,000 bonds) is $6,000,000	Amount required for interest and preferred dividend	Amount required for interest and preferred dividend
6 per cent	$240,000	$360,000	$100,000	$200,000
5	200,000	300,000		
4	160,000	240,000		
3	150,000	180,000		

So if the net earnings of the company should fall to three per cent on the total capitalization, the preferred shareholders, without the additional bonds, would still have net earnings 50 per cent in *excess* of the amount required to pay their dividend. With the additional $2,000,000 of bonds net earnings would be 10 per cent *less* than the necessary sum.

Looking at the matter from another standpoint, suppose gross earnings should decline 40 per cent, with a consequent rise in the operating ratio from 75 per cent to 80 per cent. If the company can make 6 per cent on capitalization with an operating ratio of 75 per cent, its gross earnings are: —

$4,000,000 capitalization ($240,000 net)	$6,000,000 capitalization ($360,000 net)
Gross $960,000	$1,440,000

A decline in gross of 40 per cent, accompanied with a 5 per cent increase in operating, would reduce net to: —

$4,000,000 capitalization ($240,000 net)	$6,000,000 capitalization $360,000 net)
Net $115,200	$172,800

Or with the smaller debt such a decline in gross would leave net over 15 per cent in *excess* of the amount required to pay dividends on the preferred. With the larger debt it would leave net 14 per cent *less* than the sum needed.

If, instead of creating $2,000,000 additional bonds, the common shareholders had voted to increase the preferred stock by that amount, everything so far stated of the effect on the preferred of the increase in securities would still apply. They would not by this procedure, however, add to another risk of the preferred shareholders, that is to say, the risk of having their equity completely wiped out and the property pass entirely to the disposal of the bondholders. Without the additional bonds net earnings would have to decline over 80 per cent to throw the property into the hands of the bondholders. With the additional bonds a decline of 58 per cent in net would throw the property into the hands of the bondholders.

As a matter of fact the increase in the preferred would really lessen this danger. After the increase net would have to decline 86 per cent to take the property out of the control of the shareholders. The lessening of that risk would not, however, compensate for the increased risk of a cut in dividends.

By this time the reason must have become clear for the veto power so frequently given preferred stocks, requiring the assent of preferred shareholders to any increase in bonds or preferred; or, generally, the purpose of the veto given any class of security on an increase in the amount of that class or any class having a prior claim on earnings or assets.

It should be observed that by voting an increase of $2,000,000 in the preferred in the case we have been considering the common shareholders would have voted the balance of power out of themselves.

In the state of affairs we have been considering, when the amount of one class of stock is greater than the amount of another class, it has become apparent that the voting power of the minority *class*, though equal share for share with that of the majority, becomes valueless on any clash of interest between the two classes.

As examples of corporations issuing more than two kinds of stock we may consider the capitalizations of—

The Colorado & Southern Railway

Common	$31,000,000	(paying 2 per cent)
1st preferred 4 per cent non-cumulative	8,500,000	(paying 4 per cent)
2d preferred 4 per cent non-cumulative	8,500,000	(paying 4 per cent)
Bonds [1]	49,309,000	Average 4.31 per cent

[1] Of this company — bonds of subsidiaries not counted.

The Erie Railroad

Common	$112,378,900	(paying 0)
1st preferred 4 per cent non-cumulative	16,000,000	(paying 0)
2d preferred 4 per cent non-cumulative	47,892,400	
Bonds		

The Reading Company

Common	$70,000,000	pays 6 per cent
1st preferred 4 per cent non-cumulative	28,000,000	
2d preferred 4 per cent non-cumulative	42,000,000	

(Second preferred can be converted into one half 1st preferred and one half common).

The capitalization of the Reading Company is the result of a reorganization. Notice that the total preferred just equals the common. So in a clash of interests between the common and both classes of preferred, the preferred stock possesses just as much control as the common. But suppose the company should not be earning enough to pay any dividends on the second preferred. Then the second preferred might cast its vote with the common in favor of a policy of returning earnings to the property until the corporation could earn enough to pay dividends at least on the second preferred. In the matter of the creation of indebtedness the interests of the second preferred ordinarily coincide with the interests of the first preferred.

The St. Louis and San Francisco presents another situation. Its capitalization is: —

Common	$29,000,000 (paying 0)
1st preferred 4 per cent non-cumulative (redeemable)	5,000,000 (paying 4 per cent)
2d preferred 4 per cent non-cumulative (redeemable)	16,000,000 (paying 0)

First and second preferred in this case are protected against the issuance of further securities of equal or prior rank, by a special veto power. No such further securities can be issued without a consent of a majority of the securities equal or junior to them in rank.

The American Smelters Securities Company has outstanding:

Common	$30,000,000 (not paying)
Preferred A—6 per cent cumulative	17,000,000 (paying 6 per cent)
Preferred B—5 per cent cumulative	30,000,000 (paying 5 per cent)

Recall that in this case the preferred stock has no voting power unless dividends for one year remain unpaid. This provision, considering the fact that both classes of preferred, acting together, would give a large majority, together with the fact that the stock is cumulative, serves to protect it.

H. B. Claflin Company is capitalized at:

Common	$3,829,100 (pays 6 per cent)
1st preferred	2,600,300 (pays 5 per cent)
2d preferred	2,570,600 (pays 6 per cent)

The general principle of trading on the equity goes farther in the case of the corporate form than in the case of an individual engaged in a business. So far, we have considered the matter as if capital invested in a given business always had the same earning power. As a matter of fact the earning power of capital depends very largely on the ability of those controlling and administering the particular enterprise in which it is employed.

When an individual proprietor trades on the equity he assumes more of the risk than any one else investing capital. The exception to this general rule is the silent partner of a partnership. He invests his money in the business without assuming any power in the management, yet he assumes just as much risk on his capital as those who actively manage the affairs of the undertaking. He does this because of his confidence in the ability of the active partners in the special business. He is willing to assume a risk equal to theirs, because he believes they are able to make his capital return him a large income.

If we may, for an immediate convenience, use the word "uncontrolling," it is the "uncontrolling" shareholders who are the silent partners of a corporation. Though they are "uncontrolling," they are not necessarily the minority shareholders. They may hold, and frequently do hold, a majority of the shares of the corporation. They own the scattered shares, and the controlling shareholders own the shares that are massed. It is a well-known fact of American finance that, if the majority shares are scattered, a rather small minority of the stock held by an individual shareholder, or a little group of shareholders working together, can control the corporation almost as surely as if they held an absolute majority of all the stock outstanding. This works on the mathematical basis of an inverse ratio. The more shareholders there are in a particular corporation the fewer shares can control. That fact forms part of the foundation for the desire on the part of the promoters of a corporation that the shares should be broadly distributed. If the corporation's bankers should chance to be essentially distinct from the promoters, their desire for a wide distribution of the shares arises from the fact that the shares probably will then be more tightly held and therefore afford a better basis for the market in the security. This is an important reason for seeking a wide distribution of corporate financial paper. It is another subject, however, from the one under consideration.

We do not have to seek far for the reason why from a quarter to a third of the shares of an American corporation will usually assure control. Scattered shareholders, though owning a majority of the stock, have no means of getting together in order to act in concert. They have no means of making their majority effective. Since they bought their stock relying on the ability of those in control, they will continue, at least so long as the affairs of the corporation go well, to rely on the group working in concert. So long as the corporation pays dividends, the isolated owner of the comparatively small number of shares is likely to assume that the affairs of the corporation are running well. When he bought his stock he had no intention of taking an active interest in the affairs of the enterprise. Frequently the periodic reports of the corporation do not contain any really informing matter. Whether they do or not the isolated shareholders seldom take the trouble to read them, and usually would not understand them if they did. Naturally when the concentrated minority in control ask the isolated shareholder for his proxy he either does the easy, and as far as he knows the best thing, fills out the convenient blank they have sent, and returns his proxy as requested, or else he does the one easier thing, simply drops request and blank in the waste-basket and does not bother to send his proxy to any one. Very rarely any one outside the group in control asks him for his proxy, in fact, practically never, unless the corporation's affairs have been going from bad to worse.

So the man whom the controlling minority has designated as the person for the isolated shareholder to make his proxy out to, continues to go annually to the legal head office of the company and vote his suit-case of proxies in favor of the prepared list of resolutions. All this is neither in adverse nor favorable criticism of the system. Though it often works badly, it more often works well; and perhaps greater activity on the part of the isolated shareholder would not much reduce the percentage of failures. All this is a matter of common knowledge, and has been redescribed here simply to show how the isolated shareholders, perhaps owning a large majority of the shares of the company, come to occupy the position of a silent partner in a partnership, and add their capital to enable a controlling group to trade on an even thinner equity than they otherwise could.

For we cannot continue to assume, as we have assumed up to this point, that any business can be engaged in on a scale to suit anybody's purse. It takes millions to measure the necessities of modern corporate enterprise. A group of men, having confidence in their own judgment of an enterprise, and their ability to manage it, may not, even after extending their borrowing capacity to the utmost, be able to raise enough money to engage in a particular project. They must take in partners, that is to say, other shareholders. Yet they base their confidence in the project partly on their own ability as managers, and would not entrust their own funds in it unless they felt assured that they would continue in the management. They can at the very least practically double their own funds and correspondingly increase their borrowing capacity without running any risk of having their management interfered with. They can do this even if the people who take 49 per cent of the stock form a close group, concentrating the voting power, or control value of the stock. If they judiciously scatter the stock, they can let from 70 to 80 per cent pass out of their own possession and still run no substantial danger of losing control.

See what this accomplishes. Assume that in a business of the kind they purpose engaging in, it is possible to raise, say, $66\frac{2}{3}$ per cent of the capital on bonds. If their own capital amounts to $300,000, they can sell enough stock to realize $700,000 more, and make an investment in the enterprise of $1,000,000 represented by common stock. They can now borrow $2,000,000 more, and have entire control of a business with $3,000,000 of invested capital, or ten times their own capital employed in it. If the project were one requiring at least that amount of capital, they could not have taken it up and have retained control without resorting to the corporate form. Acting as individuals, with their $300,000 on hand they could have borrowed $600,000 more, and had a total of only $900,000, or less than a third of the amount required. If it had been possible for them, under a partnership form, to raise the entire amount required, they could not at the same time have retained the undisturbed management. They could not accomplish anything like the same result even with the additional partners in the minority. Such partners would have an active voice in the management. Their acts, even unauthorized by the other partners, would bind the entire partnership. The corporate form, then, offers what is substantially a much enlarged opportunity for trading on the equity.

III

WATERED STOCK

THOUGH not intending to be controversial, we may seem, nevertheless, in discussing the subject of watered stock, to be putting ourselves in the position of *advocatus diaboli* when we say we purpose here to name the perfectly right and proper things stock-watering may accomplish. To show, however, that we know about the evils charged against the practice we shall state them at the very outset.

It is charged that stock-watering works a fraud on the investing public through enabling unscrupulous men to deceive people, by a certificate marked "par value, $100," with the idea that the corporation has assets of equivalent value. Such deception is common. Promoters of "fake" corporations have a thoroughly organized business. It must be owned that those who are deceived have only taken the view that, nominally at least, the law itself takes. For the law generally says that when a stock certificate of the par value of $100 is issued, it shall have back of it assets of the value of $100. To be sure, the law goes on to say that it will not inquire too closely into the actual value of those things which the corporation states to be of the value of $100. Having opened the door so far, the camel, if we may use this metaphor from the arid desert when speaking of watered stock, has thrust his whole body in, till we have certificates of "the par value of $100" that did not represent any assets at all when issued, yet are perfectly law proof. Doubtless "of the par value of $100" does deceive many people. It is only fair to ask if we cannot do away with the evil without doing away with the thing itself and whatever good it may have.

Two possible remedies suggest themselves. One is to do away with the statement "of the par value of $100," and let the certificate stand simply as, say, one share of ten thousand, representing $\frac{1}{10000}$th of the total ownership. That should put the prospective purchaser on inquiry as to whether the total ownership is worth anything, and consequently how much $\frac{1}{10000}$th is worth. Several eminent financiers came out against this idea and several in favor of it in a recent congressional inquiry. The proposals seem to me in accord with the facts, and I should favor it even aside from whatever its adoption would accomplish towards doing away with the deceit practiced on innocent purchasers. If the certificate did not describe itself as of the par value of anything, it would not represent itself as having any special amount of assets behind it. Under such circumstances watered stock would be like the Kantian conception of time and space, a category of the human mind, with the mind taken away.

A second proposed remedy for this deception of the unsophisticated purchaser is a prospectus act requiring a statement in any public offering of stock of the exact way it became "fully paid up," commissions paid, and other information sufficient to enable the prospective owner to see just what assets do stand back of the stock, and form some estimate of its probable value. Though this remedy does not seem quite to strike at the root of the matter in the way that removing "of the par value of" does, still, might not this do away with the evil complained of without destroying the good there may be in the thing itself?

A second charge made against watered stock is that it enables corporations, by giving a false appearance of large capital expenditures, to charge more for their services than they otherwise could. It must be owned that corporation managers do take advantage of large capitalizations to give an impression that the enterprise is making a small or very moderate return on invested capital. Generally speaking, people do not press this charge of evil against watered stock except in the case of public service corporations possessing a monopolistic or quasi-monopolistic character. The fact that many public service corporations are not paying any dividends at all, and that some occasionally fail to pay interest, proves that the possibility of raising rates under the cover of any given capitalization is not unlimited. It is not part of our purpose at this point to discuss the relation of rates and capital investment. We simply raise the question now whether the abolition of watered stock, if means can be found to effect it, would prove helpful enough to make it worth while. There is this much at any rate to be said, that some of the meritoriously useful results of watered stock can be gained approximately in other ways, so that corporation finance would not be so enormously the loser by its abolition as it would be if that were not the case.

One needs to remember, too, that a par value of capitalization greater than the value of assets may arise from other causes than stock-watering. Suppose a corporation with a capitalization of $1,000,000 has a plant that fairly cost $1,000,000 and is capable of earning the anticipated return on the investment.

Assume that on account of a high fire hazard and consequent very high premium charges the managers decided not to insure. If a fire now destroys one half the assets, the corporation has outstanding a capitalization of $1,000,000 against assets of the cost of only $500,000.

Again disclaiming any intention of entering on a discussion of proper capitalization, we may still perhaps fairly raise one of the elementary questions to keep in mind as a background of our discussion. Take two corporations: —

Corporation A

Capitalization	$1,000,000
Actual cost of assets . . .	1,000,000
Net earnings	50,000

Corporation B

Capitalization	$1,000,000
Actual cost of assets . . .	500,000
Net earnings	50,000

Assuming that one corporation is as likely to continue its earnings at $50,000 as the other, and that the relative difference in earning power is not due to a difference in management but to other conditions, obviously the assets of one are *worth* as much as the assets of the other.

Though some may incline to disbelieve the statement, there are, nevertheless, perfectly straightforward and proper reasons for watering stock. Promoters and financiers resort to it under circumstances in which they could not possibly take advantage of the dollar mark to sell for more than real value or use the diluted capitalization as a cover to conceal excessive rates. They cannot take advantage of the dollar mark when they are dealing with too sophisticated people, and they cannot use the diluted capitalization as a cover for excessive rates if the issuing corporation is engaged in manufacture and subject to active competition.

Watered stock can take a very useful and entirely proper part in corporation finance through affording a still further means than those dealt with in the earlier chapters of effecting divisions and recombinations of the incidents of ownership, — income, control, and risk. The commonest resort to stock-watering is in so-called underwriting, or syndicate, operations. They afford the easiest way to illustrate the situation.

Assume that the promoters and bankers are arranging the financial plan for a corporation to engage in a new enterprise which requires the expenditure of, say, \$3,500,000. The bankers are ready to advance \$3,000,000 secured by a mortgage, provided the promoters will put

$500,000 in the enterprise. This equity of the promoters, however, is too thin for the bankers to be content with nothing but a fixed interest return. On account of the thinness of the equity the bankers assume a considerable risk and want a compensating share of speculative profits.

We have already seen several ways in which they might procure this. They might make the bonds participating. The bankers are not, however, going into this enterprise as a permanent investment; they look forward eventually to selling their securities, making their profit on the transaction, and using their funds in a new enterprise. Though participating bonds would assure them a share in the speculative profits, such bonds are a comparatively unfamiliar security and would sell at a disadvantage in the investment market. The bankers might take convertible bonds, which, as we have seen, would give them an opportunity to take advantage of the future prosperity of the company. Neither of these forms gives the bankers any means of separating what we may call the speculation from the investment. The participating bond indissolubly combines the two, and the convertible bond will not yield any profit through increased income from the speculation so long as the holder retains any advantage from the investment. In the case of the convertible bond the holder must give up entirely his investor's prior claim and come out wholly from the protection of the equity, or he must continue content with an income limited entirely to the investment basis. Neither the participating bond nor the convertible bond accomplishes what the bankers desire. They want eventually to separate the investment and the speculative parts of their bargain. They may sell the investment and retain the speculation, as part of their bankers' profits. Or they may sell both. In that event they would dispose of the investment to one set of people having the type of mind or requirements calling only for an investment, that is, a limited risk with an assured though limited income, and dispose of the speculation to another entirely different set of people who are willing to assume the greater risk for the chance of the greater profit. If in return for their funds they receive both stock and bonds they can do just this.

An adjustment of the situation becomes a matter of bargaining between the promoters who are advancing $500,000 and the bankers who are advancing $3,000,000 for the enterprise. Assume that the promoters want the same possibility of later separating their interest in the corporation into more speculative and less speculative parts. They cannot take part bonds and part stock for the funds they supply to the corporation, because the bankers insist that the bonds must have an equity back of them of a full $500,000. The bankers consent, however, to giving the promoters a claim that will come in ahead of the speculative interest the bankers want as part of their return for the funds they supply. Let us suppose as a result of the bargaining that the promoters and the bankers come to an agreement on this plan as satisfying their various requirements.

In return for the $3,500,000 of funds supplied for its purposes the corporation will issue: —

$3,500,000 5 per cent 25-year bonds;
1,000,000 7 per cent preferred stock;
4,500,000 common stock.

Of these securities the bankers, in return for supplying $3,000,000 of cash, will get: —

$3,500,000 5 per cent bonds;
3,500,000 common stock.

In return for supplying $500,000 in cash the promoters will get: —

$1,000,000 7 per cent preferred stock;
1,000,000 common stock.

That is, the bankers, in return for funds, for every $100 supplied, get: —

$116.66 par value 5 per cent bonds;
116.66 par value of stock.

The promoters, in return for funds, for every $100 supplied, get: —

$200 par value 7 per cent preferred stock;
200 par value common stock.

As a matter of fact, the way the parties will view the transaction is that the bankers get 5 per cent 25-year bonds at 85.71, and with the bonds get a bonus of 100 per cent of common stock, and that the promoters get preferred stock at 50, with a bonus of 100 per cent of common.

Assume now that the corporation gets to a point where it can earn 10 per cent on the cash invested. Its earnings will then amount to: —

Net	$350,000
Interest	175,000
Available for preferred	175,000
Required for preferred	70,000
Available for common	105,500

or only a little over 2 per cent on the common, hardly sufficient out of which to pay a dividend.

If the business is of the type not subject to large declines in gross, now that the corporation is earning 60 per cent above interest charges the bankers may begin to market the bonds. Suppose they are able to get an average of 95.71 for the bonds. They have made in the transaction, 10 points gross, or 12½ per cent on the funds involved, and have besides a possibility of further profit in the common stock they hold. In order that this may not be thought an enormously profitable transaction for the bankers, it is only fair to say here that it has perhaps cost them between four and five points to sell the bonds.

The promoters are getting 14 per cent on their cash invested, and have their further possibility of profit in the stock they hold. Presumably they cannot yet on this showing of earnings dispose of their preferred stock advantageously.

Assume now that the affairs of the corporation continue to prosper till it can earn 15 per cent on the funds invested. Earnings increase to: —

Net	$525,000
Interest and preferred dividends require	245,000
Available for common . . .	$280,000

or a little in excess of 6.2 per cent. Probably the directors of the corporation will not declare a 5 per cent dividend on this showing. To do so would leave little available for emergencies, or to build up the property against future recessions in business. So far, too, we have said nothing about a sinking-fund to amortize the bonds. Earnings available for dividends have, however, given the common stock a substantial value. The directors may declare a dividend at the rate of 4 per cent, and so enable the holders to make, if they wish, a market for the security.

We have assumed that this is a new enterprise, and at the time of the negotiations between the promoters and the bankers had yet to go through the construction process. It would be at least two years before the project got on an earning basis, or, say, two and a half to three years before the bankers could begin to place the bonds with the investing public on the basis of assured earning power. The bankers do not want to tie up so large an amount of funds for so long a time. Having assumed the responsibility for supplying $3,000,000 of funds, they may now proceed to get the amount underwritten. That is, they will find people who will advance the money till the corporation can show established earning power, when they may either place their securities with the general lot for the bankers to offer for sale, or may withdraw them from the general mass and keep them for personal investment. Terms of these underwriting agreements vary a great deal, and we shall not attempt to go into them. The amounts taken by each underwriter or member of the underwriting syndicate, as it is called, may also vary widely, both within one syndicate and between one syndicate and another. In the case of some underwritings a comparatively few members may form the entire syndicate; it may comprise only other bankers who are taking participations. The members of other underwriting syndicates may be private capitalists widely scattered, and some of rather small resources, so that many participations may amount to as little as $5000. It seems to be the tendency to scatter the underwriting more broadly, and make the amount required for participation smaller and smaller. Often now, in fact, the idea of a syndicate with the original bankers subsequently making a general market issue to investors is hardly even pretended, and the so-called underwriting amounts really to the issue of the securities. So far as that gives the people who are supplying the money a larger proportion of earnings it seems desirable. The danger lies in the possibility of people, not familiar enough with financial matters to discriminate between a speculation and an investment, supplying funds at this point when they cannot afford to assume the amount of risk necessarily accompanying the transaction.

Assume that the bankers offer participation in the underwriting and the capitalists take it on these terms: the capitalists, in return for funds supplied the bankers, for every $100 supplied, get: —

$111.10 (approximately) par value of bonds;
55.05 (approximately) par value of stock.

Since the named terms of the underwriting would be bonds at 90 with a bonus of 50 per cent of common, we can state the matter accurately. The capitalists, in return for funds supplied to the bankers, for every 900 supplied, get: —

$1000 par value of bonds;
500 par value of stocks.

We are assuming that the promoters are keeping their preferred and common, either because of their confidence in the future of the company, or because it was part of their bargain with the bankers that they should keep them for a stipulated time in order that their securities might not interfere with the bankers' market.

If under no further obligation in the way of taking these securities off the underwriters' hands and placing them with the "ultimate consumer," — that is to say, in the hands of investors, — the bankers have made their profit and are out of it. They have made over four and a quarter (4.29) points on the bonds, which they bought at 85.71, and have disposed of at 90, and they have $2,000,000 par value of common stock, which will be worth something if the company prospers.

In the case of a genuine underwriting, the bankers have a moral obligation at least to do their utmost to take the securities off the hands of the underwriters and place them in the hands of investors. Assuming that capitalists have underwritten the securities, and the corporation has established an earning power equivalent to 10 per cent on the $3,000,000 of funds supplied, the bankers will then receive all bonds the underwriters wish to turn in for the public issue and offer them to investors at, say, 95. We will suppose the offering successful and the "public" buys all the bonds. If not, the underwriters have to take them up on their own account. The underwriting capitalists have made five points on their bonds and have still in their hands an amount of common stock equal to half the amount of bonds they underwrote. That is, if a capitalist's participation in the syndicate had been to take up $50,000 of bonds and $25,000 of common stock, he would have put the bankers in funds to the extent of $45,000, have made a cash profit of $2500, and have $25,000 of common stock with speculative possibilities.

We have had to touch on the matter of underwriting in order to bring out the way in which water in the securities of a corporation may act as a solvent to effect divisions of risk, income, and control for results otherwise impossible to get exactly. By means of the stock bonuses the bankers, in the first place, and the underwriters, in the second place, have been able to separate the resultant of income and control coming originally into their hands. Everyone has got what he wanted out of the transactions. Bankers and capitalists, with regard to this particular project at least, show the speculative type of mind. If they were not willing to assume the greater risk in expectation of the larger profit they would not have gone into the undeveloped enterprise. Each in turn has passed on the less risk and the limited income and kept the potentially unlimited income as a compensation for the risk he ran when embarking his funds in an enterprise while it was yet problematical whether the corporation would ever return a fair income on its capital.

During the bargaining between the bankers and the promoters, the bankers saw that they were contributing three things. In the first place, they made the enterprise possible at all; in the second place, they assumed, for a time at least, a large risk; in the third place, they undertook a definite labor of distributing securities of the corporation to investors. Perhaps without reasoning over the matter in detail their minds ran somewhat in this way: For the labor of selling these securities we want a specific sum of money. We shall add something to this sum partly to pay for the risk we run. To make the payment for the risk adequate we want some kind of an interest in the company, in case, as a result of our assuming this risk, the company, when operating, proves successful; and finally (just hinted in this last statement), since the promoters cannot get more favorable terms elsewhere, and cannot go ahead without accepting our terms, or their equivalent, we shall exact a still larger interest because we make the project possible at all. Watering the stock has enabled the making of a fair compensation for services performed. If the bankers had exacted a larger cash compensation to cover fully their estimate of the risk, they would have placed a further handicap on the corporation. By agreeing to take, for part of their compensation, their chance on the prosperity of the corporation, they by so much give a pledge of their good faith to purchasing investors.

Underwriters reason in much the same way. They are content with a smaller compensation for thus secondarily supplying the funds than the bankers required in case they had to find the funds directly. The bankers have already done the work of investigating the project in order to draw a conclusion about its merits, and can pass on the results of this investigation with their expert opinion to the underwriters. The project could not go ahead without the support of the bankers. They occupied a better strategic position in bargaining, and made a corresponding exaction. They agreed to supply the whole of the required funds, in this case $3,000,000, whereas each of the underwriting capitalists agrees only to supply part, some, say, $25,000, and some, $50,000. No particular underwriter was necessary to the bankers. These reasons sufficiently explain why the bankers could make a better bargain with the underwriters than the promoters could make with the bankers. The underwriters want a cash compensation, which, when secured, they can count as so much certain. They would not assume so large a risk for a cash compensation of the size they are hoping for. Again the stock bonus serves to complete the pay.

Everyone taking this common stock, so far, knows perfectly well that it represents only a right to earnings made above a certain amount. If the earnings never exceed a certain amount, the stock will never be really worth anything. As the expectation grows better and better founded that the corporation will earn in excess of the sum required for prior charges, the common stock may command speculative prices based on the probability that the corporation will be making something available for dividends.

If the underwriting were without restriction as to sale, were not, in fact, really an underwriting, but essentially a placing of the securities in the hands of capitalists, any one of the capitalists, without waiting for the corporation to establish an earning power, might resell part, or all, of his participation. He might find someone ready to purchase the underlying security, the lien on the property with the promise of a definite income, but not ready to pay anything for the speculative chance. The capitalist might sell some of his bonds, without any stock, to this investor for 85. Remembering that the capitalist paid $900 for each $1000 bond and $500 par value of stock, we may infer that the investor valued the stock as worth not in excess of $10 a share, and the capitalist valued it as being worth at least that. Accepting this as a fair appraisal of the speculative value involved, we can estimate a cash equivalent of the bargain the bankers made with the promoters. For each $857.10 the bankers received a $1000 par value bond and $1000 in par value of stock. According to the estimate just made the money equivalent for this stock would be $10 for every $100 par value. So, if, instead of accepting part of their compensation in the speculative possibilities of the stock, the bankers had made a straight loan, taking a mortgage, or bonds issued under a mortgage, as security, they would have paid $757.10 for each $1000 5 per cent 25-year bond. In other words, they would have demanded interest at the rate of about 7½ per cent to compensate them for the risk assumed.

To continue arranging a financial plan in accord with this idea, we will assume that the promoters take their compensation, for the $500,000 of funds they supply, in common stock at par. Holding strictly to the idea of an absolutely "dry" capitalization, we will not allow the bankers to take bonds at a discount, but for the $3,000,000 of funds they advance to get only $3,000,000 par value of bonds. These bonds will have to bear about 7½ per cent interest to meet the bankers' estimate of the worth of capital and compensation for the risk involved. The corporation would then be capitalized at: —

$3,000,000 7½ per cent bonds;
500,000 common stock.

When the corporation now makes 10 per cent on the funds supplied, the 2½ per cent advantage over the 7½ per cent paid for the borrowed money, which the promoters have gained by trading on the equity, will make earnings available for dividends on their stock amount to $20\frac{1}{2}$ per cent, and if earnings rise to 15 per cent on the funds supplied, they will be 60 per cent, whereas under the "watered-stock" scheme of financing the promoters would have available for their securities approximately 18 per cent and 26 per cent, respectively, in the two cases.

Looked at from the standpoint of probable permanence of organization, which makes the better plan? Under the "watered-stock" plan the corporation would continue without foreclosure or receivership so long as it earned, net, $175,000. It will have to earn over 22 per cent more, under the "dry" plan, or $225,000, net, to keep out of reorganization.

When earnings of the corporation reach a point where the public will purchase its bonds and stock for income, they will sell at a relative disadvantage compared with lower yield securities. Investors dislike to purchase bonds at a high premium because, to keep their principal unimpaired, they must set up an amortization fund to provide for the premium. Even stock above $100 a share sells at some disadvantage because the standard blocks of 10, 50, and 100 shares mount up to sums that tend to keep many people from buying.

So far, in the transactions described, watering the securities has accomplished only useful results. Can we retain these advantages and not suffer the evils alleged? Heretofore the doctrine of *caveat emptor* has enjoyed pretty general application to securities. A consideration of how far the state should go in protecting the individual gets on debatable and long and much debated ground. Would not a publicity requirement, calling for a statement of the manner of issuing the stock, with an independent certified valuation of assets turned over for securities, — something, in short, along the line of the English law covering prospectuses, — afford all the protection the state ought to give the unsophisticated investor? Even without this publicity, would not a removal of the dollar mark from the stock certificate put the uninformed purchaser of stock sufficiently on his guard? In the matter of rates, would not the removal of the dollar mark take away the obscurantism of watered stock? The rate question raises another question difficult, if indeed possible, to answer, that must be settled first: What constitutes an adequate return on invested capital?

When beginning this discussion of watered stock, we stated our intention of not getting into controversial areas. Just as a matter of opinion, however, it may be said that the removal of the dollar mark from stock certificates seems to accord with the logic of the facts and to promise greatly to improve the situation. Even if the state should see fit to enforce the transfer of assets really worth $100 to the corporation for every share issued, it would still seem worth while to remove the statement from the certificates, "of the par value of $100." I also incline to the opinion that the real usefulness of stock-watering outweighs the possibilities of harm resulting from it. Probably a requirement of further publicity would prove beneficial.

In the problem we have just been considering we will assume that owing to the nature of the project the promoters could not engage in it with funds of less than $3,500,000. They have only $500,000 available and feel so confident of its soundness that they want to trade on as thin an equity as they can. We have seen that the proposed capitalization of $3,000,000 7½ per cent bonds and $500,000 common stock does not work out as safe a financial plan as the one including the watered stock. If the enterprise is not capable of subsequent extension, the promoters must arrange for their thin equity at the start. We are not stating essentially preposterous conditions at all in assuming that an enterprise may, on the one hand, require at least $3,500,000, and, on the other hand, cannot profitably employ more than that amount. An illustration we have already used will show this. A hydraulic electrical company might require that amount to develop a water power at all, and might not be able subsequently to use essentially more than that. The stream might not afford any more power to develop, or the communities within reach of the company's transmission lines might not offer a market for more power than that already developed. Unless the promoters arrange now to trade on a thin equity, how can they do so later? Suppose they can get the $3,000,000 they require on this plan: —

6 per cent bonds, $1,750,000;
Common stock, $1,750,000.

Notice that under this plan the promoters have less than a third (28 per cent) of the voting power and under the watered-stock plan they kept nearly a half (42 per cent). This takes in the $500,000 of the promoters and places a dollar of assets back of every dollar par value of securities issued. When the corporation reaches an earning power of 8 per cent on this capitalization, let us say that a majority of the shareholders want to trade on a thinner equity. Since the company cannot use any more funds, they cannot get a thinner equity by issuing preferred stock or more bonds. They might form a new corporation with a capitalization arranged for trading on a thin equity and sell the plant out to it. On the basis of "replacement value" this plan would water the stock just as frankly as the original plan, and besides would run into legal difficulties, questions of authority, etc., that might make it hard or impossible to carry out.

IV

FINANCING AN EXPANSION

UNDER the head of "Trading on the Equity" we discussed the general principles governing the capitalization of a corporation formed to engage in a new enterprise. We have not considered what provision the corporation might make to finance a possible future extension of the business, nor, when this possibility was not foreseen and provided for, how it might meet the emergency.

After the corporation has established an earning power, it may wish to extend its business, build an addition to its plant, erect a new plant, lay its tracks farther, or do whatever other thing the nature of the enterprise may make necessary for expansion. Such an extension of operation requires financing of some kind. What can the corporation do?

It might issue and sell common stock. To do this it must either have some authorized stock still unissued or must get its charter amended to authorize more stock. It may be in place here to call to mind that the statutes governing incorporations regard capital stock as a fundamental matter, and require the charter creating the corporation to limit to a definite amount the number of shares it may issue. Though these statutes may make many other regulations about a corporation's capital stock, it is not necessary to our purpose here to go into them. Organizers of the corporation may have considered the possibility of expansion and have provided for a much larger authorized capital stock than they expect immediately to issue. Through a misnomer this often goes by the name of "treasury" stock. But, of course, it is not an asset as that name implies. A more careful terminology calls it "authorized and unissued." If the corporation has not exhausted its authority to issue, it may finance by selling such stock. In case it has already put out all the stock it had authority to issue, the corporation may apply for an amendment to its charter increasing the amount authorized.

Financing an extension of business on common stock would increase the equity the common shareholders are trading on. The decision to expand may have come as a result of assured and increasing earnings, in view of which the managers of the enterprise might feel justified in trading on a thinner equity. Besides, the demonstrated earning power would enable them to finance on more favorable terms than in the beginning. They may avoid adding to their equity by financing either on preferred stock or on bonds. We have already discussed principles that will influence their decision between the two. Besides the consideration of (1) whether or not they can safely increase their fixed charges by issuing bonds, on the one hand, and on the other (2) whether they want to cut down their percentage of the total voting power by issuing stock, add (3) the question of the relative price they can secure in the investment market for bonds and preferred stock, and we have the influences that will determine their decision.

Since the question of relative market prices of classes of securities has arisen in our discussion, we may properly give it a brief consideration at this point. Fashions change in investing as well as in other matters, so that the relative prices obtainable for different classes of securities vary somewhat from time to time. During a period of dull or declining business people may be attaching more importance to the security afforded by a mortgage lien. Through a time of active and expanding business they may be readier to see the advantages rising out of participation in profits.

When current interest rates are running high, bond interest rates tend to follow them. At such a time the managers of a corporation will feel reluctant to commit their enterprise to the issue of bonds which will carry a high interest for their entire life, twenty, thirty, or fifty years. They are then likely to temporize by financing on short-term notes, which will impose a high rate of interest, to be sure, but will fall due in several years. The corporation managers hope they will be able by that time to finance on long-term securities at more favorable rates. During the period just before the panic of 1907, when interest rates were running high, the corporations issued many millions of notes running three and five years. Once a special financial practice of this kind starts, it acquires a momentum not easy to check. People get a liking for short-term securities, say, and in their desire for this class of paper will not readily subscribe for long-term bonds. So they tend to prolong the situation when the condition creating it has ceased.

Whatever the cause, the financial market from time to time offers better relative prices for one class of security than for another. We have gone into this question simply to explain the third consideration, that of the market, in deciding whether to finance on stock or on bonds. This would determine the decision of corporation managers only when the other influences were relatively neutral. Aside from the general market, what this particular corporation might be able to get in the way of relative prices for its preferred stock and its bonds would be only the reverse of one of the other two considerations. If increasing the amount of bonds outstanding would raise interest charges to a height endangering the continuance of the shareholders in control during a period of depression, the bonds of the corporation would probably sell at a disadvantage as compared with its preferred stock. Bond-buyers want a practical assurance of income. A strong probability of income satisfies a preferred-stock buyer. If these several influences result in a determination to finance on preferred stock, the same questions of authority arise as in the case of common stock. Does the capitalization stipulated in the company's charter authorize preferred stock at all, or any more preferred stock than the corporation already has outstanding? If not, the corporation must get its charter amended.

On the other hand, if those in control decide to finance on bonds, they have a different set of considerations to face. Are there bonds outstanding already? Is the mortgage under which they are issued open or closed? Is it a blanket mortgage? Are the outstanding bonds subject to call or not?

If the corporation has no bonds outstanding the matter is simple. Though a lawyer, in the absence of express statutory permission to issue bonds, likes well enough to find an authority expressly stated in the charter, he can, in the absence of either, fall back upon the sufficient principle that creating indebtedness and issuing bonds to secure it is one of the ordinary ways of conducting business that does not need express statutory or charter authorization: a vote of the shareholders and a resolution of the directors will cover the matter.

How many bonds shall they sell? Shall they authorize more than the immediate need requires? What interest shall they bear? How long shall they run? Those in control of the affairs of the corporation must decide these and many other matters of detail. A later chapter on "Form" will discuss considerations affecting the decision.

If the corporation already has bonds outstanding, the situation may be much more complex. Is the authority under which they are issued exhausted or not? That is, has the corporation issued all the bonds authorized? If the bonds are mortgage bonds, this question becomes: Is the mortgage open or closed? In case the amount of "bonds authorized but not issued" covers the sum needed for the expansion, the corporation needs simply to issue a sufficient quantity for its requirements. When a corporation has no "bonds authorized but not issued," the first question, in the absence of such special restrictions as we discussed in the chapter on "The Instruments of Corporation Finance," would be whether or not the outstanding bonds were issued under a blanket mortgage. For the few who may not be familiar with the phrase "blanket mortgage," we may explain that such a mortgage covers both "present and future acquired property." In the case of bonds so secured, no matter what new property the corporation may get, it comes under the existing mortgage, and the corporation cannot issue bonds on the property of equal rank as a lien on it with those already outstanding.

Perhaps the bonds outstanding under such a blanket mortgage are "subject to call," and when the desire for expansion comes, the corporation managers may find it expedient to call in the outstanding bonds in order that they may put out a new and larger first mortgage issue with as many bonds authorized as needed to cover the expansion, and more if thought desirable. This possibility of contingencies not immediately foreseen makes highly desirable the reservation to the corporation of the call privilege. We shall discuss elsewhere other considerations affecting the right of call. Bankers for the corporation may have insisted on the blanket mortgage. Their doing so shows that they looked for security not merely to the present value of particular assets, but to the value of the enterprise as a whole. In case the necessity of foreclosure arises, they want to be able to take over everything required to run the business. Conceivably the corporation, through changing conditions, or as a result of experience, might find it expedient to move the location of its plant and install newer machinery. Advantages gained might amply compensate for the loss in abandoning the old plant. Under such circumstances the holders of bonds secured by a mortgage covering only the assets owned at the time of its execution might find that, however ample such assets were when the bonds were issued, they are now worth very little. Though an extreme case, this is quite within the bounds of possibility, and shows why corporations, under the insistence of bankers, so commonly place blanket mortgages on their properties.

A like insistence on the part of the bankers also accounts for the fact that corporations do not oftener create mortgages authorizing the issue of more bonds than they require for immediate purposes. Suppose a corporation has assets worth $2,000,000, and bonds outstanding to the amount of $1,000,000. The claim of the bondholders amounts to only 50 per cent of the value of the property on which they can enforce it. If the corporation has $2,000,000 bonds authorized under the mortgage, and now issues the other $1,000,000 at par, the assets rise to $3,000,000, to be sure, but the claim of the bondholders now amounts to 66⅔ per cent of their value. Besides vitiating the security, additional authorized bonds coming into the market in this way tend to depress prices below the point representing the difference they cause in the strength of the security. These considerations explain why corporations do not oftener have "authorized bonds" ready to finance expansions.

It may be, however, that if the corporation has bonds outstanding they are not secured by a blanket mortgage. If in such circumstances it wants to finance an expansion it can create a new first mortgage covering the new assets. When corporations have closed but not blanket mortgages, they most frequently finance an extension on bonds called "first and consolidated mortgage," or "first and refunding," or some similar name. All mean the same thing, namely, that, since the existing mortgage is not of the "blanket" variety, the corporation can place a first mortgage on the new property. Instead, however, of limiting the authorized issue under the new mortgage to just the amount needed for the extension, the shareholders, at the request of the directors, probably authorize an amount equal to the existing bonds and enough more to finance the extension. The mortgage stipulates, however, that an amount of these new bonds equal to the old outstanding bonds can be issued only to refund the old bonds. Although it may be made possible, so far as the new mortgage is concerned, to use the new bonds at any time to retire the old, ordinarily those in control of the affairs of the corporation have no intention or expectation of retiring the old bonds before they fall due. When the old bonds do mature, the corporation managers will simply replace them with the authorized and unissued bonds under the new mortgage. Until that time the new bonds will be a first mortgage on the new property and a second mortgage on the old.

New bonds issued under such a "first and refunding mortgage" may vastly exceed the amount needed for the new construction and the proceeds go to meet other requirements of the corporation. Often, indeed, the bonds have the security of a first mortgage on only an insignificant amount of property, just enough to permit the corporation to use the term "first mortgage" in the title of the bonds. Investors like the sound of "first mortgage." It stands for everything safe. "Second mortgage" sounds abhorrent. When the bankers of the corporation arrange for a new issue they avoid it and substitute some euphemism. So far as names go, one would hardly guess that second mortgages exist in corporation finance.

Occasionally, if the security has come down from early days, its title confesses the remoteness of the lien. Outstanding bonds of the Erie Railroad, for example, run up to an acknowledged fifth mortgage before they begin to get the word "first" into the title of remoter securities. Its capitalization presents: —

$2,482,000 New York and Erie Railroad first mortgage 4s, 1937; a first mortgage on the main line from Piermont to Dunkirk, 446.78 miles.

$2,149,000 New York and Erie Railroad second mortgage 5s, 1919; a second mortgage on the same mileage.

$4,617,000 New York and Erie Railroad third mortgage 4½s, 1923; a third mortgage on the same mileage.

$2,926,000 New York and Erie Railroad fourth mortgage 5s, 1920; a fourth mortgage on the same mileage, and besides a first mortgage on the branch from

Graycourt to Newburgh, New York, 18.73 miles. (It seems decidedly odd to-day that the bankers missed the opportunity to call this a "first and" something mortgage.)

$709,500 New York and Erie Railroad fifth mortgage 4s, 1928; a fifth mortgage on the main mileage and a second on the Newburgh branch.

Apparently the period of unsophistication ended when the road changed from the New York and Erie Railroad to the Erie Railway, for the next and *sixth* mortgage issue becomes the

($16,891,000) Erie Railway *first consolidated mortgage* 7s, 1920.

However true that this is the first *consolidated* mortgage, it is not a first mortgage on anything. After this issue comes the $80,342,000 Erie Railway first consolidated 4s, 1996, which "get by" apparently because, though not the first consolidated issue of the road, they are the *first* consolidated issue *to bear interest at the rate of 4 per cent.* When the Erie changed from the Erie *Railway* to the Erie *Railroad*, and came to issue an eighth mortgage, it put out the ($22,000,000) Erie Railroad *general mortgage* convertible 4s, 1953. Acting on the principle under which the bankers had named the two preceding issues, this should carry the name *first general* mortgage. Apparently, however, the idea of breadth of lien serves sufficiently to indicate strength without any attempt to draw attention away from the altitude, or distance above the ground, of the security. We took the Erie for discussion nearly by chance. Almost any large railroad system would afford examples of such rather blind names.

So far, we have discussed the possibility of expansion only through the one original corporation. We have now to consider what may be done through the creation of other subsidiary corporations; and through mergers, consolidations, and combinations of various kinds. First, we shall take up only the creation of new corporations for the extension of the original business and leave for later discussion the financing incidental to joining established businesses.

Even when a corporation has a blanket mortgage, it can, by the intervention of a construction company, finance on essentially a divisional first mortgage. The construction company can build the extension, of whatever kind it may be, and borrow the money on temporary loans with its bonds as collateral. Owning all the stock of the construction company, the original corporation stands back of it and lends it credit. When the time comes, which may be whenever the property of the new company has been assembled and the lien of the bonds attached, the original company can vote all the stock in the new company to sell all the new assets to itself. It will thereupon assume the bonds secured on the new assets. First mortgage bonds of the original company, though issued under a blanket mortgage, never become a first mortgage on the new assets, because the new assets never become the property of the original company until after they become subject to the lien of the new bonds. The new bonds are secured on the new assets, and on their assumption become a direct general obligation of the original company. Consequently the purchasers of the new bonds are in just as good a position as if the original company had no blanket mortgage. Of course, the blanket mortgage will cover the new assets as a second mortgage. So the corporation cannot now create a second mortgage on the new property, as it could have done if there had been no blanket mortgage.

The original corporation need not assume the new bonds. It can leave the subsidiary corporation in existence and still sell new bonds having a first right against the new assets and also having the credit of the original company back of them. Without the general credit of the original company the bonds of the subsidiary would sell at a disadvantage. They need the better-known name, and the assurance of a going concern with an established earning power. Particularly in the case of the expansion of a railroad by branch lines, the branch-line bonds need the obligation of the main-line company to assure the continuance of favorable traffic relations. The managers of the enterprise can give the bonds of the subsidiary the credit of the original company in two ways.

The original company can *guarantee* the bonds of the subsidiary.

In another way the managers of the enterprise can put the credit of the original company back of bonds secured on the property of the subsidiary. They can use the bonds of the subsidiary as collateral against which the original company can issue its own bonds. This, of course, makes the new security sold a direct obligation of the original company, — not, as in the other case, an indirect obligation. This gives them an advantage from a market standpoint just from the fact that they directly carry the name of the older, better-known corporation that has the estab lished earning power. Probably the fact that they are collateral bonds instead of having their lien directly on the property to some extent offsets, from the market standpoint, the advantage of being the direct obligation of the parent company. In actual security they have all the effect of a direct first mortgage, but the fact that they have to be described as "virtually a first mortgage," or something to that effect, certainly does not help them market-wise. The public knows that a direct first mortgage is, at any rate, a first mortgage, for whatever it may be worth, but a collateral bond may be almost anything.

For an illustration the St. Louis & San Francisco Railroad Company showed both forms of financing an expansion by branch lines. Ozark & Cherokee Central first mortgage 5s, due October, 1913, $2,880,000, are secured by first mortgage on the road from Fayetteville, Arkansas, to Okmulgee, Oklahoma, 143.65 miles. The St. Louis & San Francisco Railroad Company guarantees both principal and interest. St. Louis & San Francisco Railroad 4½s, due February, 1912 (called for redemption August, 1911), $3,351,000, were secured by the deposit in trust of the entire capital stock and first mortgage bonds, $4,500,000 each, of the Arkansas Valley & Western Railway Company, 175.25 miles, running from Western Junction to Avard, Oklahoma.

A modification of this second form, illustrated by the St. Louis & San Francisco 4½s, due August, 1912, seems almost ideal for a corporation looking forward to systematic expansion of this kind. Such comparatively small issues, as railroad finance goes, of two or three millions sell at a disadvantage compared with a larger issue. They are not large enough to form a basis for general active trading such as the big issues afford. Any bonds which have a really active market sell at a considerable advantage over bonds of equal security which may have a good, but not a quick and very close market. An investor can at any time either buy or sell a really quick bond at a selling price of not more than a quarter of a point less than the price at which he could buy. With a less active security, though still one with a good market, in trying to make a quick sale he might find that he would have to take a point or more less than the price at which he could buy. The constant quotation and the close market make a really active security much more desirable collateral at the bank.

Such issues as the $14,376,000 Missouri Pacific Railway Company 5 per cent 30-year gold bonds, due January 1, 1917, show an appreciation of these principles on the part of those controlling the finances of the corporation. The authorized issue amounts to $15,000,000, and the right to put them out is limited to so much per mile of actually completed mileage of railroads whose first mortgage bonds are deposited in trust to secure bonds of this issue. The bonds outstanding are secured by the deposit in trust of $17,215,000 first mortgage bonds covering 1120.43 miles of railway of seven subsidiary companies. A similar issue of the Missouri Pacific, the $9,636,000 of an authorized $10,000,000, are protected by a stipulation that they shall not be issued to exceed 80 per cent of the par value of the first mortgage bonds of the subsidiary companies deposited to secure them. This issue is secured by the deposit of the first mortgage bonds of no less than twenty subsidiaries ranging from two miles to one hundred and thirty-one miles of line.

A general collateral mortgage of this kind provides an issue large enough to assure active close trading in the market. It has all the advantages of being a direct obligation of the well-known parent company and essentially a first mortgage on the property of the subsidiaries. By having a large authorized amount, with proper restrictions as to issuing only on the deposit of stipulated quantity of collateral comprising securities of actually operating properties, the parent company can keep on financing extensions out of the one issue. As it requires new funds from time to time, it has an actually existing market for the securities it wants to finance on. In case of default, the bondholders occupy a better position in bargaining on a reorganization than the bondholders of small properties not bound together in this way. That is to say, a railroad needs all its branches more than it needs any single one.

So far the discussion has assumed a corporation expanding simply through an extension of its own enterprise. We have not touched on the possibility of expanding through joining in some way with an existing independent enterprise. The words "consolidation," "merger," and sometimes "combination," are loosely used to indicate such an expansion without any discrimination as to the manner of joining. They may indicate one of two very different things: (1) physical merger, or (2) combination through stock ownership. That is, a corporation may extend either through acquiring title to the assets of another corporation or by acquiring all, or a controlling amount, of the stock of another corporation.

We shall leave for a little later consideration the matter of creating a new corporation for the purpose of consolidating two or more existing corporate enterprises through taking over their assets, or combining them by stock ownership.

Provided the shareholders of one corporation act in a situation giving them the legal right, they can vote to sell the assets of their corporation to another corporation. Under such circumstances any of the methods of financing already indicated will serve to finance the acquisition of the new assets. If the selling corporation has bonds outstanding that are not to be retired before the merger, the purchasing company can assume them, just as an individual might purchase any property subject to a mortgage and assume the mortgage. When the purchasing company has an existing blanket mortgage, which is, say, a first mortgage, it will become a second mortgage on the new assets.

If legal difficulties prevent a physical merger, or other considerations make it undesirable, one corporation may combine with another through stock ownership. The financial problem then is: How shall one corporation acquire the stock of the other? Perhaps the stockholders of one corporation will take the shares of the other in payment for their own. They swap stock. Then the stock of the "combined" corporation goes into the treasury of the "combining" corporation, and the amount of "outstanding" stock of the "combining" corporation becomes so much larger. When this procedure is impracticable, the purchasing corporation may sell its own stock to raise funds for the purchase of the stock of the other corporation. Or it may acquire part by swapping and the rest by purchase.

Collateral bonds afford a means of financing the purchase of stock in another corporation. The purchasing corporation may borrow money on temporary loans to make the purchase, then fund the temporary loan into the permanent one of bonds, with the purchased stock as collateral security. American railroad finance affords some rather notable examples of extension by this means.

The Atlantic Coast Line Railroad owns $30,000,000 of Louisville & Nashville Railroad stock out of the total issue of $59,917,220, and has outstanding, secured on this stock, $35,000,000 Atlantic Coast Line Railroad, Louisville & Nashville collateral, 4s, October, 1952.

The Northern Pacific Railway and the Great Northern Railway are both obligors on the $215,227,000 of bonds known as the Chicago, Burlington & Quincy joint 4s, July, 1921, by means of which the two obligor roads own approximately 98 per cent of all the capital stock of the Chicago, Burlington & Quincy Railroad.

The Oregon Short Line Railroad has outstanding \$45,000,000 (\$100,000,000, authorized) refunding 4s, December, 1929, secured on \$108,000,000 Southern Pacific Company stock (\$374,451,800 outstanding); also on \$7,206,400 preferred and \$10,255,400 common stock of the Baltimore & Ohio and \$8,000,000 New York Central & Hudson River Railroad stock, besides \$23,443,000 San Pedro, Los Angeles & Salt Lake 4s.

Remembering that the Union Pacific Railroad Company owns \$27,350,700 out of \$27,460,000 capital stock of the Oregon Short Line Railroad Company, recalling also that the Southern Pacific Company owns the \$13,800,000 preferred stock and \$67,274,200 of the \$67,275,500 common stock of the Central Pacific Railway Company by means of \$30,618,500 Southern Pacific Company, Central Pacific stock collateral 4s, 1949, we can begin to get an idea of how useful some financial organizers have found this stock collateral bond device in acquiring control of and combining properties.

Rock Island furnishes the standard model of pyramiding in this way to acquire control of large properties with a relatively small amount of capital.

One corporation hardly combines with another unless the other owns all the stock, except directors' qualifying shares. In a looser sense the acquisition by one corporation of a majority of the stock of another may be considered a combination, possibly the ownership of less than a majority, if enough to give control on the principles already discussed, may be so called. From that point the ownership by one corporation of stock in another grades off through all the degrees of intercorporate relationship, till it may become so small as just to indicate a sense of friendliness.

Financial plans suggested so far for expansion have not contemplated the creation of new corporations except as subsidiaries. Incorporating a new company, to which two or more existing corporations become the subsidiaries, will accomplish any of the results of combination already spoken of. It should be borne in mind that if one corporation acquires absolute control of another through owning all the capital stock of the other, the owning or principal corporation can at will turn the combination by stock ownership into a physical merger or consolidation by taking the necessary legal steps.

A new corporation can combine two or more others with itself through any of the devices already spoken of, as swapping its stock for the stock of the others, or acquiring the stock of the others through the issue of collateral bonds. The United States Steel Corporation was, as everyone knows, a new corporation formed to combine a number of others. Most of the big consolidations of the past two decades were effected in this way.

Long-term leases afford another simple form of combination. Railroad finance especially takes frequent advantage of them. They are applicable, however, to combinations of industrial enterprises and are sometimes used for that purpose.

Most commonly the transaction takes the form of the shareholders of one corporation voting to lease its property to another corporation in return for the other's agreement to pay a rental equal to a certain percentage on the stock of the lessor company. Ordinarily the lessee company directly guarantees the payment of a stipulated dividend on the stock of the lessor, which thereupon sells in the market as *guaranteed* stock. If the lease is for a long term, as ninety-nine or nine hundred and ninety-nine years, the combination on its face does not differ very much in results from a physical merger financed by bonds secured on the new assets. In the case of the lease, if the lessee corporation fails to pay the guaranteed dividend on the lessor's stock, the shareholders of the lessor corporation can take back their property. Likewise in the case of the physical merger, the purchasers of the bonds secured on the assets of the merged corporation can take the property on any failure of the purchasing corporation to pay interest. There is one important difference: A receiver of the lessee corporation, generally speaking, can repudiate the lease, but a receiver of a corporation which has issued bonds to pay for new assets cannot repudiate the bonds.

Looking at the matter from another standpoint, a lessee corporation conceivably might take advantage of a lease to make the leased property relatively unimportant, but the shareholders of the lessor corporation, in event of a receivership of the lessee, would have no recourse except to their own property. On the other hand, holders of bonds issued to pay for the property of the merged corporation very likely would occupy such a position with regard to the risk as to be the first to move for a receiver of the consolidated corporation, and would have recourse to the earning power of all the assets to recover their interest.

Provided the shareholders of the corporation which it is desired to merge can and will authorize the lease, the financing problem, of course, becomes very simple. In fact there is none. The lessee does not have to provide any funds to put the transaction through. It assumes a larger obligation in expectation of a still larger income. Presumably the leased property is more valuable to the lessee, for one reason or another, than to the shareholders of the lessor corporation. Whatever reasons would apply for a merger or consolidation of any kind might apply for a combination by lease. We have not undertaken to go into these reasons, but simply to indicate how, when found desirable, the managers of the corporations concerned might carry it out.

We may examine several examples of guaranteed stock which sufficiently indicate the purpose and scope of this form of financing. The American Telegraph and Cable Company has $14,000,000 guaranteed stock outstanding. The property of the company is leased to the Western Union Telegraph Company for fifty years from May 12, 1882, at a rental of 5 per cent on the stock. The lessee is to maintain and renew the cables and equipment. The line of the Boston & Albany Railroad extends from Boston, Massachusetts, to Albany, New York, and makes, with branches, a total of 304 miles. The corporation has capital stock outstanding to the amount of $25,000,000, and has leased its property to the New York Central & Hudson River Railroad for ninety-nine years at a rental of guaranteed dividends of 8 per cent on the stock, organization expenses, interest on bonds, taxes, expenses of maintenance, etc. The Boston & Albany Railroad Company received $5,500,000 New York Central 3½ per cent 100-year debentures to pay for certain property not included in the lease, the income from which yields about .77 per cent additional per annum on the stock. Dividends are paid quarterly at the following rates: 2 per cent in March, 2½ per cent in June, 2 per cent in September, and 2¼ per cent in December.

The line of the Boston & Providence Railroad extends from Boston, Massachusetts, to Providence, Rhode Island, with branches, making a total of sixty-three miles. The property is leased to the Old Colony Railroad for ninety-nine years from April 1, 1888, at a rental of interest on bonds, dividends of 10 per cent per annum on the $4,000,000 stock, and $3000 per annum for organization expenses. The Old Colony Railroad is leased to the New York, New Haven & Hartford Railroad for ninety-nine years from March 1, 1893, and the lessee assumes all liabilities. The Pittsburg, Fort Wayne & Chicago Railway extends from Pittsburg, Pennsylvania, to Chicago, with a branch, a distance of 470 miles. The capital consists of $38,875,300 special improvement and $19,714,286 common stock. The special stock is subject to the common, and was issued to the Pennsylvania Railroad for improvements. The property is leased to the Pennsylvania Railroad in perpetuity from July 1, 1869, at a rental of interest and sinking-fund on bonds and 7 per cent per annum on both classes of stock. The lease was assigned to the Pennsylvania Company on the lessee's assuming all obligations of the lessor.

The rate of dividends guaranteed indicates the valuation placed on the leased property. Though ordinarily it runs from 4 per cent to 8 per cent, it may, however, be almost anything. For example the Maine Central Railroad guarantees 2 per cent on the $300,000 capital stock of the Rumford Falls & Rangeley Lakes Railroad. The Maine Central Railroad also guarantees 2 per cent on the $4,392,538 capital stock of the Portland & Ogdensburg Railway, running from Portland, Maine, to Lunenburg, Vermont. These represent low points. Of course the lessee always guarantees interest on any bonds of the lessor. The Philadelphia & Reading Railway pays 12 per cent on the capital stock of the

Philadelphia, Germantown & Norristown Railroad. The Delaware & Hudson Company pays a dividend of $6\frac{1}{4}$ per cent on the \$345,360 Rome & Clinton Railroad stock. The old Metropolitan Street Railway Company of New York City guaranteed 16 per cent on the \$1,000,000 capital stock of the Eighth Avenue Railroad.

To make the discussion complete, we need to consider a type of holding company somewhat different from the ordinary holding company formed for the purpose of combination. Usually the companies taken with an industrial consolidation are competitors. That is so from the very nature of the case. Any two or more concerns making the same kind of goods must to some extent be in competition. Companies taken into a railroad consolidation ordinarily are roads that lead into each other's lines in such a way as to form an extended system. In fact, so far as interstate lines are concerned the federal law prohibits a complete consolidation of any other kind. There is a class of companies, however, which unite concerns that are not physically connected in any way, and cannot from the nature of their business be competitors; at least, they cannot be in selling, though perhaps they might be in buying. One or two examples will explain the situation better than any amount of further general statement.

The American Light and Traction Company has outstanding $11,146,700 common and $14,236,200 6 per cent cumulative preferred stock. This company owns at least 97 per cent of the stock of the following concerns: Milwaukee Gas Light Company; Detroit City Gas Company; Grand Rapids Gas Light Company; Madison Wisconsin Gas and Electric Company; St. Joseph Gas Company; St. Paul Gas Light Company; Binghampton Gas Works; Consolidated Gas Company, Long Branch, New Jersey; Muskegon Traction and Lighting Company; St. Croix Power Company of Somerset, Wisconsin; Southern Light and Traction Company.

The North American Company, with $29,793,300 capital stock outstanding, controls the Milwaukee Electric Railway and Light Company; Milwaukee Light, Heat and Traction Company; Milwaukee Central Heating Company; Racine Gas Light Company; Kenosha Gas and Electric Company; Watertown, Wisconsin, Gas and Electric Company; Detroit Edison Company; Union Light and Power Company, St. Louis; St. Louis County Gas Company; Suburban Electric Light and Power Company, St. Louis; United Railways Company of St.

Louis; Mississippi River Power Distributing Company; West Kentucky Coal Company.

Such concerns as the Electric Bond and Share Company present a type still further away from the holding company for the ordinary form of consolidation. They are really financing concerns, and perhaps look to doing more thoroughly from the beginning, with subsidiary companies in the construction stage, what companies like the American Light and Traction and the North American have done with companies already established. The Electric Bond and Share Company and similar organizations put out general issues of collateral bonds secured on the first mortgage bonds of new traction, electric lighting, or other public utility concerns. The issuing companies reserve the right to substitute collateral, so that, whenever the affairs of a subsidiary company warrant, they can take out from under the trust deed the securities of that particular corporation and put them on the market. When they do that they have to return other collateral of a required standard.

Though this principle has been applied so far only to public service corporations, nothing in the idea prevents it from being applied to industrial undertakings. Only the financing, generally speaking, of industrials is not as well organized as the financing of public utilities. As we have seen all along, the railroads present the most developed and most complex forms of financing. Likewise the organization for financing railroads has developed further than the organization for financing the public utilities, and that in turn further than the organization for financing industrials.

Though somewhat aside from corporation finance in any strict sense, the practice of financing real estate by means of collateral security-issues presents a matter of interest. Such issues follow two general forms. In one a real estate development company issues its own general obligation secured on the equity of redemption of specific real estate. That is, the company finances its developments, so far as it can, on regular real estate mortgages; then finances the equity by the issue of its obligations secured on the equities of a number of properties against each of which a specific first mortgage is outstanding. Such development companies may vary this general plan in many ways.

Mortgage guarantee companies and similar institutions issue the other type of real estate collateral securities. They simply place a number of real estate first mortgages as collateral under an issue of their bonds. Since the collateral mortgages do not all fall due at the same time, the issuing company must reserve the right of substitution. This is not a matter of corporation finance at all, but simply a device for splitting-up real estate mortgage securities into uniform and relatively small amounts to fit the pocket-book of the small investor who likes that kind of security. The issuing company makes its profit out of the difference between the rate of interest the mortgages pay and the interest the collateral bonds bear. In return it adds its own obligation to the obligations of the mortgagors, and further lessens risk by the distribution of security.

Railway terminals often give rise to a form of financing a little different from any yet mentioned. Located in the hearts of big cities, they frequently do service for more than one railroad. Companies using them are likely to finance them through a separate corporation, and become in one form or other joint obligors on any securities issued to the public to raise the funds to pay for land and construction.

One example will illustrate the whole situation. The Kansas City Terminal Railway Company owns and operates the new joint terminal in the city from which the company takes its name. The property serves to give ten railroads an entrance into this big Western commercial centre. They are the: Atchison, Topeka & Santa Fé Railway; Chicago & Alton Railroad; Chicago, Burlington & Quincy Railroad; Chicago, Milwaukee & St. Paul Railway; Missouri, Kansas & Texas Railway; Missouri Pacific Railway; St. Louis & San Francisco Railroad; Union Pacific Railroad; Wabash Railroad.

Each company agrees to pay one tenth of the principal and interest on the bonds issued by the terminal company, one tenth of the taxes, and its share of the operating expenses. Each is also jointly as well as severally liable; that is, if any one or more of the railroad companies entering into this undertaking should default on the agreement, the others would have to make good the amount defaulted.

The terminal company has authorized $50,000,000 first mortgage 4 per cent bonds, due January 1, 1960, subject to call as a whole on January 1, 1930, or on any interest date thereafter. Some $12,500,000 of these are already outstanding. It is estimated that the property will cost when completed about $30,000,000. The property comprises: —

1. A union passenger station and fifty-one acres for trackage.

2. A six-track line of 6.61 miles as an approach or throat to the station.

3. A four-track line 2.36 miles long connecting the throat with the main line of the Chicago, Burlington & Quincy Railroad.

4. A four-track line $6\frac{1}{4}$ miles in length along the north side of the city and connecting with the throat.

5. Two double-track lines 6.72 miles in length reaching the stockyards and the railroads from the west.

Plans for the whole include 188 miles of main and industrial railroad tracks, four local freight stations, passenger, freight, and switching yards, in addition to the big union passenger station.

Terminals like these are to-day one of the most important keys to the railroad situation. We have gone into this description at some length to show the nature of the property financed by these joint undertakings, and to bring out some of the reasons, besides the obvious one of convenience, for the joint financing. Aside from the matter of convenience, they would be too great a burden on the single line.

The Kansas City Terminal is one of many. To cite just another, the Boston Terminal Company owns the property known as the South Station in Boston, which gives an entry into that city to the New York, New Haven & Hartford Railroad and the Boston

& Albany Railroad, — now, by lease, part of the New York Central system. These two companies pay a rental in monthly installments of a sum sufficient to meet operating expenses, 4 per cent on $500,000 of stock which the railroads themselves own, and the interest on the $14,000,000 first mortgage 3½ per cent bonds, due 1947, which the terminal company has outstanding.

This situation of a separate terminal corporation leads to mentioning a tendency to what we may call a corporate division of labor. Organizers of corporate enterprise and their lawyers are multiplying subsidiary corporations. They often form a new one for each division of the business. A single enterprise may have a corporation to erect buildings, another corporation to own and operate them, a corporation for the purchase of raw materials, one for its transportation, another for the manufacturing operation, and still another for the selling organization. Only time can tell whether this .tendency will spread more widely and extend to still further division, or whether the investing public will insist on a greater simplicity in securities and a massing of the credit of the whole enterprise.

V

AMORTIZATION

In the chapter about "Trading on the Equity" we discussed considerations affecting the desirability of corporate indebtedness. Stating the case briefly, the borrowers in a business by creating a debt take a greater risk on the capital they have committed, and the lenders accept a lower return and less influence in the management for their capital in consideration of a smaller risk.

Let us repeat an elementary matter just for the sake of having the facts directly before us. Take, for example, a business that will average a return of, say, 8 per cent on all the capital invested in it. Then an investment of $1,000,000 will give an average annual return of $80,000. If by placing a mortgage on the property the managers of the business can borrow $500,000 at 6 per cent, they will, to be sure, have to pay $30,000 annually for this capital, but will have $50,000 left for income on their own $500,000 invested in the business. Borrowing increased their return from the 8 per cent they would have received without the hired capital to 10 per cent. They are running the risk that next year the business may earn only $50,000. In that event they will still have to part with $30,000 to the lenders and have only $20,000 for themselves. Out of a return on the total capital of 5 per cent they will receive only 4 per cent. If the business comes up to expectation, however, and earns an average of 8 per cent on all capital, the owners, who are the shareholders, gain largely. This expectation of greater gain furnishes the regular business reason for borrowing.

Such a reason, however, is not temporary but permanent. If the transaction is based on a good business principle to-day, it continues good business to-morrow and always. Nevertheless, in spite of the permanence of such a reason, an individual conducting a business might wisely contemplate paying off his debts, because he is liable to accident and death at any time, and might not wish to have his estate exposed to the greater hazard of trading on the equity. This consideration of prudence does not apply to a corporation, which is perpetual in its nature.

Since to have a debt is good business, why should a corporation which has once created one ever amortize it? There are two reasons. Amortization (1) permits a corporation to readjust its financial plan to changed or changing conditions, and (2) meets a requirement of those advancing the borrowed money, or procures the money on sufficiently more favorable terms to make the provision for retiring the debt good policy.

In the ordinary situation, if the corporation were the only party to the debt bargain it might not amortize the debt at all, or provide only for reducing instead of retiring it. From the single standpoint of a debt, as such, being good business, one without any maturity would be ideal. Some English railroads do have perpetual debts, usually debentures of one form or another. American corporations have not commonly adopted such a form of indebtedness. There are a few instances of it. For example, the Public Service Corporation of New Jersey, operating the traction lines in that populous section adjacent to New York City, has outstanding about $20,000,000 perpetual interest-bearing certificates. Perpetual indebtedness does not, however, for the present at any rate, accord with the American custom. As a business expedient it is of doubtful propriety. There are other considerations besides the merit of being in debt. American corporate creditors do not want to rely solely on the "market" for converting their asset into cash. They want an obligation to return the principal at a time certain, which they can wait for if they wish. Of course, this is notably true of that vast majority of smaller corporations whose securities never have an active market anyway.

From the standpoint of the debtor party a perpetual debt does not afford the corporation the desirable periodic opportunity for readjusting financial arrangements in accord with changed conditions in the particular enterprise or the general business situation.

We should remember, however, that paying the creditor and paying the debt are very different matters. American railroad corporations have regularly adopted the practice of paying the creditor, but not of paying the debt. In other words, they do not amortize a debt but refund it.

Since a continuance of the debt seems desirable from the argument so far, why do so many corporations other than railroads provide for amortization by sinking-funds or by serial repayment? Are they mistaken in their policy, or do they consider business reasons beyond those indicated? We have already twice mentioned one reason, the opportunity amortization gives for readjusting financial arrangements to accord with changed conditions, whether in the general business situation or in the particular enterprise. It may be that in the course of time the corporation cannot advantageously use so much capital in the business as at present and will therefore desire to pay off part of the debt. Refunding would meet the contingency of conditions changing for the better, and enable the corporation to borrow on more favorable terms or in large amounts. The business may have grown so prosperous, its earning power so increased, or the general business situation may have grown better, so that, whereas at first it may have had to pay, say, 6 per cent for its borrowed money, it can at the maturity of this issue now borrow at, say, 4½ per cent. This is taken up at length in the section on the interest rate. Or the corporation may want to increase its borrowings in order either to trade on a thinner equity or to extend the business. By a refunding operation it can do either of these things advantageously. It can issue the new bonds at the lower rate, or it can put them out in a larger amount than the issue they refund. On the other hand, if conditions make it desirable to retire or reduce the debt, the corporation cannot do either unless it has provided funds.

Then, too, when a specific asset stands back of a specific liability, and that asset by its nature decreases during the lifetime of the debt, conservative corporate management compels an amortization of the debt at least as rapid as the decrease in the value of the asset, or the building-up of a special fund to stand in place of the decreasing value. Equipment bonds stand in just this position, and form an exception to the general rule that railroads do not provide means for the retirement of their debts. The bonds are issued for the purchase of specific cars and locomotives and are secured by title to the equipment bought. A serial maturity retires them faster than the depreciation. Serial repayment is the rule, too, in the case of the Great Lakes steamship bonds issued on the security of single vessels. It is also the rule with bonds issued on the security of natural resources which diminish with use, as bonds on timberlands and coal or other mines.

With the railroad equipment and the steamboat the decrease in the value of the asset is regular, and the debtor corporation must, in prudence, provide with corresponding regularity for amortization. In the case of bonds issued on natural resources, prudence dictates that amortization need only be provided to keep pace proportionately with the quantitative decrease of the asset. Regularly the amortization agreement provides that a certain amount per thousand feet of timber cut or per ton of coal mined be set aside for the sinking-fund. This sum should be large enough at least to maintain the ratio of assets to liabilities. Further to assure the bondholders the corporation usually agrees to cut or mine annually an amount sufficient to provide for the retirement of all the bonds by the time of their maturity. It is common, in fact, to have such bonds actually mature in series.

Assets of a timberland, unless conserved by forestation, or of a coal mine, necessarily diminish with use. With the ordinary public service or manufacturing corporation this does not follow. Reasonably careful management requires that the corporation at the very least spend enough in maintenance to keep up the value of its assets. If the corporation keeps its assets in the same proportion to its debt it satisfies the demands of prudence.

A debt results from an agreement however, and it is an old maxim that it takes two parties to make a bargain. So far we have discussed only the considerations affecting one party, the debtor corporation. What the corporation may consider adequate for the demands of prudence, the creditor party may not deem nearly equal to his desire for safety. For example, if the value of a special asset pledged as security decreases from its very nature, as in the case of the railway equipment or the steamship, the creditor will not rest satisfied with any less assurance of the maintenance of the equity than that given by serial repayment. Amortization in this way requires that certain of the bonds definitely fall due each year. Since failure to pay the maturing bonds constitutes a default of principal, with the consequent loss of right to control the property, a corporation cannot fail merely as a matter of convenience to keep up the amortization.

Though amortization may not be so important to the creditor in cases other than those already mentioned, he may nevertheless require it as a condition of investing. Stating the actual situation more nearly, the banking-house arranging to finance an issue of bonds may insist on a sinking-fund as a measure of protection to their clients. That leads immediately to the main part of the discussion. Assuming that the debt is to be amortized, in what manner shall the corporation provide for its repayment?

For the sake of facilitating statement, the discussion will assume the common case of a corporate debt represented by bonds and secured by mortgage to a trust company for the benefit of the bondholders. Principles of amortization, however, would be the same for other forms of debt as for that. Several questions will test the merit of the plans of amortization now in use.

1. What gives assurance that the stipulations for amortization will be carried out?

2. How will the amortization provisions affect the market for the security?

3. How evenly do they distribute the burden of the debt?

4. What work do they involve in carrying them out?

5. What assurance do they give that they equal the requirements?

6. How does the cost to the corporation compare with that of other forms of amortization?

To explain question 3, — the burden of a debt comprises the obligation to pay interest and the obligation to pay principal. Serial repayment and sinking-funds have for their very purpose the distribution of this burden of principal payment over a period of time. Since principal payment, however, makes only part of the burden, the manner of distributing this may disturb the equality of interest payment and result in an uneven distribution of the whole debt burden. Ideally the burden of principal and interest combined should weigh evenly through the period of the debt.

Methods of amortization fall under several heads: —

(*a*) The bonds may mature serially.

(*b*) The corporation may build up a redemption fund by depositing cash with the trustee.

(*c*) It may invest the redemption fund in securities other than those it has issued itself.

(*d*) It may use the fund to purchase securities of the issue being amortized.

Serial maturity meets with an objection in the answer to the second of the test questions — as to the effect of the amortization provisions on the market for the security. Such a maturity makes impossible a uniform quotation in terms of price, and, therefore, with one or two other considerations affecting the matter, makes difficult the creation of an active market such as exists on the stock exchange and through street trading in many securities capable of a uniform quotation in terms of price. Take, for example, the New York Central Railroad equipment 4½ per cent bonds, due serially from January 1, 1911, to January 1, 1925, inclusive. A price quotation for the entire issue except par (100) would be impossible. Anywhere below par the bonds having the shortest time to run are worth the most in terms of price. That is to say, a 4½ per cent bond having only three years to run would sell at 99.17 in order to yield 4.80 per cent. If it had nine years to run it would have to sell at 97.83 in order to yield 4.80 per cent. Without making any allowance for the investment demand at the time running to short-term or long-term securities, if the nine years' bond were worth 97.83, then the three years' bond would be worth 99.17.

A uniform quotation can be given, to be sure, in terms of basis, as, say, "any maturity, price to yield $4\frac{3}{4}$ per cent," or "price to yield $4\frac{3}{4}$ per cent, less one eighth." Such a quotation is too technical for any but the initiated buyer. It involves too many considerations. Furthermore, fashions of investing, as already indicated, throw out of gear the possibility of quoting uniformly in even such a complex manner. As a matter of fact, depending on a good many considerations, investors at one period show a preference for short-term securities, at another for long-term. During a time of short-term investment preference, a bond due in two years might command a $4\frac{3}{4}$ per cent basis, but one of the same serial issue due in ten years might not command better than a $4\frac{3}{4}$ per cent basis, less one fourth; that is to say, a quarter of a point lower in real price than the shorter maturity.

Such an impossibility of a practical uniform quotation does actually detract from the marketability of a security, and in consequence lessens its value; for quickness of the market is an element of actual value. Doubtless the serial maturity, and therefore the lack of one quotation for an issue as a whole, explains some part of the fact that equipment bonds have sold at relatively low prices considering their intrinsic merit as a security. Of course, in the case of equipment bonds the importance of amortization, and the assurance of it that a serial maturity gives, outweigh the matter of the market difficulty.

Another disadvantage of serial maturity, though not necessarily inherent in the form itself, exists in the use of the form in practice. Since the annual or semiannual maturities in practice are generally of equal or nearly equal amounts, the serial repayment makes an uneven distribution of the burden of the debt. A few figures will express this more quickly and plainly than words.

Take a debt of $1,000,000 bearing 6 per cent interest and having a serial maturity of $100,000 annually. That is to say, the debt is repayable in ten equal annual installments of principal. Burden of the debt will then distribute itself in this manner: —

	Amortization charge	Interest charge	Total debt burden
1st year	$100,000	$60,000	$160,000
2d year	100,000	54,000	154,000
3d year	100,000	48,000	148,000

and so on. The amortization charge, or amount of principal retired each year, remains constant with the result of a steadily diminishing interest charge. Consequently the total burden of the debt bears heaviest the first year and steadily grows lighter. When the enterprise is new, the heaviest charge comes at a time when the corporation can least conveniently carry it.

If the serial repayment offsets the diminishing of an asset through depreciation, as in the case of equipment bonds, such an uneven distribution of the debt burden becomes inevitable. The rate of depreciation does not adjust itself to meet the financial convenience of a corporation. As already stated, however, an unequal debt burden is not inherent in the nature of serial maturities. Proper computation could so grade the serial repayment that it would be small in the beginning and advance each year the exact amount the interest charge declined. The discussion will illustrate this further on.

So much for serial repayment. On account of its interfering with the opportunity to make a market that an issue uniform in maturity as well as in other respects affords, it seems undesirable except under special circumstances, as in the case of equipment bonds. There remains for us a discussion of sinking-funds.

We can dismiss with a word or two the possibility of cash deposits to build up a fund with the trustee available and sufficient to retire the debt at its maturity. A trust company cannot on the average afford to pay an interest rate sufficient to offset the interest the corporation pays on the bonds outstanding. If it can pay three, or even four, per cent, and the bonds bear interest at five per cent, obviously the corporation loses heavily on its sinking-fund, besides adding to the risk of its own business whatever risk there may be of the trust company failing. This form is objectionable mostly from the sixth consideration, the cost to the corporation.

As a second form of sinking-fund, the corporation could apply its annual amortization charge to the purchase of securities other than its own. If this charge were properly graduated, it would distribute the burden of the debt. A requirement in the trust deed that securities purchased for the sinking-fund be placed on deposit with the trustee would guard against the corporation impairing the fund under special stress. Question arises immediately, however, of the safety of the securities purchased for the fund. A difficulty closely connected with the question is the proper adjustment of income return on the sinking-fund securities to offset the interest payment on the corporation securities being amortized. If the outstanding bonds yield six per cent, unless the securities in the sinking-fund average to yield six per cent, the corporation suffers loss. Again, if the securities being amortized carry a high rate of interest, any attempt to get an offsetting interest rate in the sinking-fund securities would simply mean the addition of another risk to the risks inherent in the enterprise.

Getting the sinking-fund securities into cash available to meet the maturity of the outstanding bonds offers another difficulty. Unless all the paper purchased for the fund matures before the outstanding bonds, the corporation assumes the risk of the market in disposing of them. To have all the sinking-fund securities mature in time to meet the payment of the outstanding bonds, yet not so long before as to cause substantial loss through a large cash deposit in the bank, would be impracticable.

All this calls for a great deal of work and the exercise of careful banking judgment.

Any attempt to make money on the sinking-fund obviously creates too great a temptation and leads directly to danger. The best skill and judgment in the world would not be able, with due regard to other considerations, exactly to adjust the income on the sinking-fund to meet the interest on the debt. Enough has been said to show that a sinking-fund of this class cannot be a matter of exact calculation.

There remains a third form of sinking-fund amortization. To take advantage of this, a corporation must issue its bonds subject to call. In order to offset what an investor inclines to regard as a disadvantage, the uncertainty as to when his loan may mature and involve the necessity for reinvestment, the corporation usually makes the price at which the bonds are subject to call some point above par — say, 105. The fact that the call price limits an advance in the market price also weighs in the minds of many investors. If the corporation must call some of the bonds every year, or may call any, or all, before the stipulated certain maturity, naturally a purchaser will not pay more than the call price and run the risk of loss from having his bonds called earlier than the full term. The surprising thing is that he will ever do so. Yet occasionally callable issues go to a market price higher than the call price. If the corporation is under no obligation to call, but reserves the right to call simply as a privilege, this does not surprise so much. The purchaser may argue that the corporation will not exercise the privilege, particularly if it have outstanding second mortgage securities that would thereby become a first lien and present an obstacle to the corporation if it should wish to take advantage of an enhanced credit in a general refunding operation. If the corporation has only one issue, callable at, say, 102, bearing five per cent interest and having fifteen years to run, which would make the call price of 102 a 4.80 basis, and the bonds should advance to 106.50 or approximately a 4.40 basis, the corporation might be tempted to call the bonds at 102 and refund by selling bonds at its apparent credit for a security of that class, on a 4.40 basis. For example, it might refund with 4s at 95½, which would be close to the 4.40 basis. The longer the security had to run the more probable a situation that would make the refunding profitable.

For considerations quite aside from amortization, however, ordinarily a corporation should make its bonds subject to call. It should do this in order to enable it to take care of contingencies that might arise in the business that would make the right to call of the utmost importance. The possibility of wanting to create a much larger first mortgage issue to extend the business when the corporation could not finance on a second mortgage at all, or could do so only at a much greater disadvantage, is only one of many conditions that might arise to make the right to call tremendously important. Since the corporation for such reasons as these should reserve the right to call the issue as a whole anyway, the further disadvantage of making the issue subject to retirement in part, and certain of retirement in part from time to time for amortization purposes, does not add much to the disadvantage under which the issue may suffer. We shall discuss the calling of bonds further under the general head of "Form."

If a corporation issues bonds subject to call, and amortizes them by calling the required amount each year, it keeps the advantage of a uniform issue with a corresponding uniform price quotation, and consequent better market position than an issue falling due serially would have. Ordinarily the trustee must, in this form of amortization, if it can, purchase the sinking-fund bonds on the open market at a price lower than the call price. If the market price is not below the call figure, the trustee must draw bond numbers by lot up to the required amount and call the bonds drawn. The mortgages contain full provisions for this, and for notification to the holders of coupon bonds by publication of the numbers of the bonds drawn for call, and by letter to the holders of registered bonds. Often, however, the corporation agrees to call all the sinking-fund bonds at the agreed price, no matter what the market price may be, and thereby adds an attractive little element of speculation to the security. If an investor should buy his bonds at an issue price of 97, and should have them called in several years at 103, he would profit handsomely.

In the best actual practice of amortizing by this method, corporations have adopted the form of keeping the bonds "alive" in the hands of the trustee for the sinking-fund and applying the interest on these bonds to the purchase of further bonds for the fund. The next page shows such a fund actually worked out.

A sinking-fund in the form just discussed gains the desired result of equalizing the burden of the debt. It does not call for the difficult task of judgment of investing in other securities for a sinking-fund. It accomplishes directly the end in view, the amortization of the debt, and gives an assurance almost, if

SINKING-FUND COMPUTATION

The A. B. Company

Issue, $1,000,000 6 per cent 15-year bonds. Denominations, $1000, $500, and $100. Due 1st April, 1924. Interest payable 1st April and October. Issue to be purchased or drawn each year at par and kept alive by trustee.

Annual interest, $60,000 — **Sinking-fund, $46,200**

	Year	Amount of sinking-fund	Interest accrued on bonds held in sinking-fund	Total amount to invest each year	Bonds purchased for sinking-fund	Cash balance in sinking-fund	Total amount of bonds held in sinking-fund
1 October	1910	$46,200		$46,200	$46,200		$46,200
	1911	46,200	$2,772	48,972	48,900	$72	95,100
	1912	46,200	5,706	51,978	51,900	78	147,000
	1913	46,200	8,820	55,098	55,000	98	202,000
	1914	46,200	12,120	58,418	58,400	18	260,400
	1915	46,200	15,624	61,842	61,800	42	322,200
	1916	46,200	19,332	65,574	65,500	74	387,700
	1917	46,200	23,262	69,536	69,500	36	457,200
	1918	46,200	27,432	73,668	73,600	68	530,800
	1919	46,200	31,848	78,116	78,100	16	608,900
	1920	46,200	36,534	82,750	82,700	50	691,600
	1921	46,200	41,496	87,746	87,700	46	779,300
	1922	46,200	46,758	93,004	93,000	4	872,300
	1923	46,200	52,338	98,542	98,500	42	970,800
1 April	1924		29,124	29,166	29,100	66	999,900

not quite, as strong as serial repayment that this will be done. The plan leaves the issue uniform in all respects and, therefore, subject only to the considerations of the callable feature, leaves it in the best possible position market-wise. It is mathematically certain that the amortization provisions equal the requirements. The cost to the corporation is as small as possible in order to gain the desired advantages.

Though this form of sinking-fund is the best in use and contains the essential qualities of the best possible plan of amortization, it can nevertheless be simplified and strengthened in several respects. The nominal keeping the bonds alive in the hands of the trustee shows how slowly the mind advances in practice. The idea of a "fund" for amortization prevails over the essential idea of amortization itself. The plan of the bonds continuing to draw interest probably results from the thought of a constant sinking-fund payment plus a constant interest payment making the burden of the debt constant. Keeping the bonds "alive" merely renders this plausible. Though they are in the hands of the trustee, which at law may prevent the extinction of the debt, the trustee has a double trust, one to the holders of the outstanding bonds and one to the corporation, to keep the purchased bonds, so far as the principal of the debt is concerned, as though they were dead and canceled. Indeed, in most cases the trustee must stamp the bonds, "Purchased and held for the sinking-fund," which would effectively prevent their negotiation. To all intents and purposes the bonds are dead. Their continuing to draw interest is a mere device to equalize the burden of the debt. Actually to cancel the purchased bonds would accord with the real situation and make a more artistic arrangement. The business would then take the form of the corporation, annually or semi-annually, appropriating a sum equal to the base sum obtained by computation plus the amount of interest on the bonds kept alive in the sinking-fund under the present form. The corporation would give this annually increasing sum to the trustee for the purchase of bonds on the market or by call. It should be the duty of the trustee to cancel them when bought. The reluctance of trust companies to assume any real responsibility in connection with bond issues of which they are trustees is well known. However, to give the bondholders as strong an assurance of amortization as serial maturity involves, failure on the part of the corporation to provide at the proper time the stipulated amount for the purchase of bonds should constitute a default involving the same consequences as failure to pay interest when due. It should be the duty of the trustee to notify the bondholder of any failure on the part of the corporation to provide for the amortization. Such a duty does not go beyond a mere administrative responsibility no greater than trust companies already accept in the execution of trusts.

VI

FORM

No. 1

No........ ....Shares

STATE OF GEORGIA

THE CHATTANOOGA, ROME AND COLUMBUS RAILROAD COMPANY

This certifies that .... is the owner of .... Shares of One Hundred Dollars each, of the full paid Capital Stock of the Chattanooga, Rome and Columbus Railroad Company, transferable only on the books of the Company, in person or by Attorney, on surrender of this Certificate.

Rome, Georgia, ... 19...

................Secretary. ....President.

....

(*On stub*)

No..........

..............Shares

...........19...

Issued to

....

....

Received above described Certificate,

..............19...

....

(*On back*)

For Value Received...... hereby sell, assign and transfer unto ....Shares of the Capital Stock represented by the within Certificate, and do hereby irrevocably constitute and appoint........ Attorney to transfer the said Stock on the Books of the within named Company,

with full power of substitution in the premises.
Dated........19...
....
In the presence of.......

(Right end)
Registered this ...... day of .... 19...
Central Trust Company of New York,
by ....Secretary.

(Left end)
Countersigned this .... day of ....19....
by..............Transfer Agent.

No. 2

Common Stock

No.......... ....Shares.

CHICAGO AND INDIANA COAL RAILWAY COMPANY

This certifies that .... entitled to .... Shares of One Hundred Dollars each of the Common Capital Stock of the Chicago and Indiana Coal Railway Company, transferable only on the books of the Company, in person or by Attorney, upon the surrender of this Certificate. This stock is subject to an issue of a six per cent. non-cumulative Preferred Stock of said Company. All dividends paid by said Company in any year, except said six per cent. upon the Preferred Stock, shall be paid upon this Stock. This Certificate is not valid unless countersigned and registered by the Registrar of Transfers of the Company.

In Witness Whereof, the said Company has caused this Certificate to be signed by its President and Treasurer, this ...... day of ...... 19...

.... Treasurer ....President.

....

....

(On stub)

No......

Dated.......19...

.........Shares

Issued to

....

For ....

....

Received the above described Certificate of the Common Stock,

.............19...

....

(On back)

For value received,.......
hereby sell, assign and transfer unto

....

............Shares of the Capital Stock represented by the within Certificate, and do hereby irrevocably constitute and appoint

....

Attorney to transfer the said Stock on the Books of the within named Company, with full power of substitution in the premises.

Dated .... 19.....

....

In presence of ....

(On end)

Countersigned and Registered this .... day of .... 19...

Metropolitan Trust Company of the City of New York, Registrar of Transfers,

by .... Secretary.

No. 12

Preferred stock

No........ ....Shares.

CHICAGO AND INDIANA COAL RAILWAY COMPANY

This certifies that .... entitled to .... Shares of One Hundred Dollars each of the Preferred Capital Stock of the Chicago and Indiana Coal Railway Company, transferable only on the books of the Company, in person or by Attorney, upon the surrender of this Certificate.

This Stock is entitled to a preference to the aggregate amount of six per cent. in dividends which may be declared in any fiscal year out of the net earnings of the Company, which dividend shall not be cumulative. All dividends paid by said Company in any one year, except said six per cent., shall be paid upon the Common Stock.

This Certificate is not valid unless countersigned and registered by the Registrar of Transfers of the Company.

In Witness Whereof, the said Company has caused this Certificate to be signed by its President and Treasurer this ...... day of .....19...

..............Treasurer. ....President.

(On stub)

No........
Dated ....19...
.... Shares
Issued to
....
For..................
....
Received the above de-

(On back)

For Value Received,...... hereby sell, assign and transfer unto
....
.... Shares of the Capital Stock represented by the within Certificate, and do hereby irrevocably consti-

scribed Certificate of the Preferred Stock,
.... 19...
....

tute and appoint ....
Attorney to transfer the said Stock on the Books of the within named Company, with full power of substitution in the premises.
Dated.......... 19....
....
In presence of ....

(*On end*)

Countersigned and Registered this .... day of .... 19...
Metropolitan Trust Company of the City of New York, Registrar of Transfers,
by.....................Secretary.

Some of the expressions on these stock certificate forms may require explanation to people unfamiliar with financial paper.

"*Shares of one hundred dollars each*": That is to say, $100 is the "par value"; so that if the authorized capital of the corporation were $1,000,000, it would have a total of 10,000 shares. If the certificate should read: "Shares of ten dollars each," then, of course, the total number of shares of a corporation capitalized at $1,000,000 would be 100,000. To get a further understanding of what this statement may mean, read the discussion of "Watered Stock."

"*Full paid*": A corporation may issue shares to subscribers who have paid up only part of the amount agreed. In that event an assignee of the shares would get only what property the assignor had, and might be liable to the corporation for the amount due. The liability of the shareholder to the corporation is also an asset of the corporation to which creditors have a right. To indicate that no such liability to the corporation exists, its certificates bear the words "full" or "fully" paid.

"*Countersigned this...... day of ...... 19... by ....Transfer Agent*": Legal title to a share of stock lies in the registered owner; that is, in the person whose name appears on the books of the corporation as the owner. An assignee of the shares in possession of the certificate has it in his power to have the legal title transferred to him on the books of the corporation. If a corporation is of some magnitude, and its shares are frequently dealt in, it may maintain a formal transfer agency. Depending on the frequency of transfers, this may be an entirely separate office, or a department in the corporation's own general offices, or a trust company which has undertaken to do the work. The president and the secretary may sign the certificates in blank, or may authorize the transfer agent to sign them with a stamp. The counter-signature of the transfer agent becomes a means of validating the certificate. The corporation may close its transfer books for a definite period over dividend dates, or before shareholders meetings, in order to give itself time to make up the list of shareholders to whom it must mail dividends, or to determine who is entitled to vote at the meetings.

"*Registered this*...... *day of*...... 19... *Central Trust Company of New York by*...... ....*Secretary*": A trust company fulfilling the duties of registrar of stock simply acts as a check on the transfer agent in guarding against mistake or fraud in the number of shares issued. The signature of the registrar gives an assurance that the number does not exceed the amount authorized. Of course the situation demands that the registrar be absolutely separated from the transfer agent. The purpose of registering stock differs entirely from that of registering bonds, but answers to that of a trustee's "certification" of bonds. In respect to transfer of title, all stock by its very nature occupies the same position as registered bonds.

The wording of the power of attorney form appearing on the back of a stock certificate fully explains its purpose. In the ordinary course of sale through a broker, the owner of the stock would simply fill in the date line, sign, and get his signature witnessed. The seller does not know the purchaser, and cannot fill in his name. If the seller should fill in the blank for the attorney, that particular person would either have to appear at the transfer agency or exercise the "power of substitution" to make out a new power of attorney.

(Form of $1000 Coupon Bond)

$1000 U.S. Gold. £205.15.2 Stg. M.4200 D.R.W.
Francs 5160. Guilders 2480.

No......

United States of America.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY

General Lien 15–20 Year .... Per Cent. Gold Bond.

St. Louis and San Francisco Railroad Company (hereinafter called the Railroad Company) for value received, hereby promises to pay to bearer, or, if registered, to the registered holder of this bond, one thousand dollars in gold coin of the United States of America of or equal to the present standard of weight and fineness, on the first day of May, 1927, at its office or agency in the City of New York; or, at the option of the holder, in London, England, 205 pounds 15 sh. 2d. Sterling; or in Frankfort o/M. or Berlin, Germany, 4200 marks, D.R.W.; or in Amsterdam, Holland, 2480 guilders; or, 5160 francs if paid in France, Belgium or Switzerland; and to pay interest on said principal amount from May 1, 1907, in said cities and countries respectively, in said respective currencies, at the rate of .... per centum per annum, payable at such office or agency in like gold coin semi-annually on the first day of November and of May in each year, upon presentation and surrender of the annexed coupons.

Both the principal and interest of this bond are payable without deduction for any tax or taxes which the Railroad Company may be required to pay thereon or retain therefrom under any present or future law of the United States, or of any state, county or municipality therein.

This bond is one of a series of coupon bonds and registered bonds of the Railroad Company, known as its General Lien 15–20 Year Gold Bonds, limited to the principal amount of $109,850,400 at any one time outstanding, and all issued and to be issued under, and equally secured by, a mortgage and deed of trust, dated August 27, 1907, executed by the Railroad Company to Bankers Trust Company and N. A. McMillan, as Trustees, and under and by an Agreement dated December 31, 1908, made by and between the Railroad Company, said Trustees and the Holders of all of the then outstanding General Lien 15–20 Year Gold Bonds. For a description of the properties and franchises mortgaged, the nature and extent of the security, the rights of the holders of bonds, and the terms and conditions upon which the bonds are issued and secured, reference is made to said mortgage and deed of trust and to said Agreement.

The bonds of this issue are subject to redemption at the option of the Railroad Company at a premium of two and one half per cent. and accrued interest, on any interest day prior to May 1, 1922, and at par and accrued interest on May 1, 1922, or on any interest day subsequent thereto.

This bond shall pass by delivery unless registered in the name of the owner on the books of the Railroad Company, such registry being noted on the bond by the

Railroad Company. After such registry, no transfer shall be valid unless made on said books by the registered holder in person, or by his attorney duly authorized, and similarly noted on the bond, but the same may be discharged from registry by a transfer thereon to bearer, and thereupon transferability by delivery shall be restored; but this bond may again from time to time be registered or transferred to bearer as before. Such registration, however, shall not affect the negotiability of the coupons, which shall continue to be transferable by delivery.

The coupon bonds are for $1000 each and are numbered consecutively from 1 to 109,851 inclusive, but the Railroad Company may, in lieu of any one thereof, issue ten coupon bonds for $100 each, bearing the same serial number and lettered consecutively from A to J.

The holder of any coupon bond for $1000 may, at his option, surrender for cancellation his bond with all unmatured coupons thereto appertaining in exchange for a registered bond without coupons, as provided in said mortgage and deed of trust.

This bond shall not become valid or obligatory for any purpose unless and until it shall have been authenticated by the certificate hereon endorsed of the Trust Company at the time being one of the Trustees under said mortgage and deed of trust.

In Witness Whereof, St. Louis and San Francisco Railroad Company has caused this bond to be signed by its president or one of its vice presidents, and its corporate seal to be hereunto affixed and to be attested by its secretary or an assistant secretary, and coupons for said interest with the engraved signature of its treasurer or an assistant treasurer to be attached hereto, as of the twenty-seventh day of August, 1907.

St. Louis and San Francisco Railroad Company.

By....................

President.

Attest:

. . . .

Secretary.

(Form of Coupon on $1000 Bond)

No. . . . .

On the first day of . . . ., 19. . ., unless the bond hereinafter mentioned shall have been called for previous redemption, St. Louis and San Francisco Railroad Company will pay to bearer at its office or agency in the City of New York, U. S. A., on surrender of this coupon . . . . dollars U. S. Gold; or in London, England, £. . . . .; or in Frankfort o. / M., or Berlin, Germany, M. . . . .; or in Amsterdam, Holland, ... Guilders; or, if paid in France, Belgium or Switzerland, ... Francs; being six months' interest then due on its General Lien 15–20 Year Gold Bonds No. . . . .

. . . .

Treasurer.

(Form of Registered Bond)

No. . . . .

$. . . . .

United States of America.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY

Registered General Lien 15–20 Year . . . . Per Cent. Gold Bond.

St. Louis and San Francisco Railroad Company (hereinafter called the Railroad Company) for value received, hereby promises to pay to . . . . .or assigns, ... thousand dollars in gold coin of the United States of America, of or equal to the present standard of weight and fineness, on the first day of May, 1927, at its office or agency in the City of New York; and to pay interest on said principal amount from the first day of May or of November, as the case may be, next preceding the date of this bond, at the rate of .... per centum per annum, payable at such office or agency in like gold coin semi-annually on the first day of November and of May in each year.

Both the principal and interest of this bond are payable without deduction for any tax or taxes which the Railroad Company may be required to pay thereon or retain therefrom under any present or future law of the United States or of any state, county or municipality therein.

This bond is one of a series of coupon bonds and registered bonds of the Railroad Company, known as its General Lien 15–20 Year Gold Bonds, limited to the principal amount of $109,850,400 at any one time outstanding, and all issued and to be issued under and equally secured by a mortgage and deed of trust, dated August 27, 1907, executed by the Railroad Company to Bankers Trust Company and N. A. McMillan, as Trustees, and under and by an Agreement dated December 31, 1908, made by and between the Railroad Company, said Trustees and the Holders of all the then outstanding General Lien 15–20 Year Gold Bonds. For a description of the properties and franchises mortgaged, the nature and extent of the security, the rights of the holders of bonds, and the terms and conditions upon which the bonds are issued, and secured, reference is made to said mortgage and deed of trust and to said Agreement.

The bonds of this issue are subject to redemption at the option of the Railroad Company at a premium of two and one half per cent. and accrued interest, on any interest day prior to May 1, 1922, and at par and accrued interest on May 1, 1922, or on any interest day subsequent thereto.

This bond is transferable by the registered holder thereof in person, or by attorney duly authorized, on the books of the Railroad Company, upon surrender and cancellation of this bond, and thereupon a new registered bond will be issued to the transferee in exchange therefor, as provided in said mortgage and deed of trust. This bond also, in the manner prescribed in said mortgage and deed of trust and upon payment of the charge therein provided for, is exchangeable for coupon bonds of the denomination of $1000 for the same aggregate principal sum, and bearing all unmatured coupons.

This bond shall not become valid or obligatory for any purpose unless and until it shall have been authenticated by the certificate hereon endorsed of the Trust Company at the time being one of the Trustees under said mortgage and deed of trust.

In Witness Whereof, St. Louis and San Francisco Railroad Company has caused these presents to be signed by its president or one of its vice presidents, and its corporate seal to be hereunto affixed and to be attested by its secretary or an assistant secretary, this .... day of .... 19...

St. Louis and San Francisco Railroad Company.

By................,

President.

Attest:

....

Secretary.

Denomination: The ordinary denomination of bonds is $1000. For coupon bonds that is the maximum. Registered bonds may come in denominations of $5000 and multiples of $5000. Frequently bonds come in smaller denominations than $1000. A denomination of $500 is common. And there is some tendency to issue denominations as small as $100 to meet the purchasing ability of people of small means. So far the demand has not been great enough to make the issue of the smallest denominations common. When $500 and $100 denominations are issued at all, they form only part of the entire issue.

In the form presented the denomination is translated into its equivalent in sterling, marks, and francs. This, of course, makes the bonds more available for the English, German, and French markets. Sometimes part of the issue is put out with an even amount in the foreign currency — as £200. So long as the bond stays abroad, that is advantageous. If the investor should want to resell in the American market, that would be a greater disadvantage than it is an advantage in the foreign market. Since this is the natural primary market for an American security, such a resale is not an unlikely event. It is difficult to make the bonds of different currencies interchangeable for the very reason that would make it desirable to have them interchangeable, namely, because the denominations in the various currencies do not come out even.

Interest rate: Though the rate of interest has been left blank in the form, as a matter of fact, these particular bonds have been issued as 5 per cents. The reason for leaving blank the place for naming the rate of interest the bonds are to bear is because the mortgage is still "open"; that is, more bonds can be issued under it, and the directors desire to have authority to make the bonds to be issued in the future bear a different interest rate. Owing either to a change in market conditions or to a change in the position of the corporation, either of which[7] is very likely to happen, especially over a series of years, the bonds may sell on a different basis from the one they sell on now. Since bonds sell at a disadvantage at almost any premium, and also if at too great a discount, it is thought desirable to leave the interest rate blank in order that it may be changed to one at which the bonds will sell most advantageously. Presumably this will be a rate at which the bonds will sell at some discount from par. The rate will be changed only in case that will have a favorable effect greater than the somewhat unfavorable effect of breaking up the uniformity of the issue as a whole. The interest rate on some issues has been changed in this way. For example, of the Chicago Burlington & Quincy, Illinois division, bonds dated 1899 and due 1949, \$49,650,000 are $3\frac{1}{2}$s and \$34,165,000 are 4s. Chicago, Milwaukee

& St. Paul Railway general mortgage bonds, due 1989, are part in 4s and part in 3½s. Chicago & Northwestern general mortgage bonds, due 1987, are also part 3½s and part 4s.

Term: Considerations of purpose of issue, the credit of the corporation, the condition of the market, all affect the decision of the term for which a corporation shall issue its bonds. The term itself may be absolute or uncertain. That is, the bonds may run for a length of time that neither the debtor corporation nor the creditor bondholder can change. Or they may run for a term which the corporation, on the one hand, can shorten but cannot increase, and the bondholder, on the other hand, cannot affect. In that case it may be either that the corporation can redeem the bonds at any time, or at some special time, or within some special times. If the corporation may redeem the bonds only at or after a date which is nearer to the time of maturity than it is to the time of issue, we call them "optional," otherwise simply "redeemable." The bond used for illustration presents both situations. It is optional in that the corporation has the option to redeem it at par only on or after May 1, 1922. Since the corporation may repurchase it by paying a premium of two and a half per cent at any interest date before May 1, 1922, it is also called redeemable. We will discuss this further under the head of "right to redeem."

Returning to considerations affecting the term of bonds, the purpose of issue requires first attention. When speaking of amortization we discussed the idea of continuing the indebtedness in order to continue the advantage of trading on the equity. If the corporation issues the bonds for general corporate purposes, as, say, for constructing or extending its plant, the purpose of issue does not affect the term of the bonds. As a matter of safe conduct of the business, in order to assure a continuance of earning power the corporation should spend on its general property sufficient funds to take care of depreciation and maintenance and so keep good the equity protecting the bondholder. When the corporation issues the bonds for a special purpose, however, the nature of the assets it acquires with the proceeds may have an important bearing on the life of the bonds. The term should be well within the probable earning life of the assets. The corporation should not have to continue paying interest on property no longer productive of income. A bondholder must see to it that his security remains sufficiently unimpaired to protect him. For these reasons equipment bonds, for example, should not run much, if any, longer than ten years. To take an illustration outside of private corporations, a municipality should not issue bonds for paving purposes to run for a longer term than the paving will last. Bonds issued to provide funds for the construction of an office building should mature well within what is likely to be valuable life of the building. This would take into account possible changes in the style of office buildings, a kind of depreciation due to obsolescence.

Another consideration, the credit of the corporation, may affect the term of the bonds. If those in control anticipate that some time in the future it will enjoy better credit, they will not want the bonds to run so long that the corporation will have to pay a rate of interest based on its period of poor credit for a good many years beyond the time when it should enjoy better credit. A new corporation presents this particular case. It has no established earning power, or lacks the prestige of long continued good income. A corporation that has recently gone through a reorganization offers the same considerations. Those who have authority to fix the term of the bond will not want to make it exceptionally long. It will be advantageous, as soon as may be after the corporation has reached as good a credit as can be anticipated, to refund on a lower basis. On the other hand, they must make the term long enough not to embarrass the corporation by the necessity for refunding before its credit has reached a point where it can refund advantageously.

Converse considerations guide the decision on the length of term in issuing bonds of an old corporation at the height of its credit. Presumably the corporation wants to continue trading on the equity. Since that is the case, it can make a good bargain now that will save it from the trouble of refunding for some time, and may save it the necessity of making a poorer bargain in refunding at the end of a shorter term.

General market considerations, aside from the credit of the particular corporation, also affect the decision on the term of the bonds. When long-term interest rates are high, or to say the same thing in other words, when the price of bonds is low, obviously a corporation would be inflicting a handicap on itself to issue securities of very long term. So, as we should expect, during seemingly acute periods of high interest rates the corporations issue securities of an exceptionally short term. At the time of high long-term interest rates before and after the panic of 1907, concerns like the New York, New Haven & Hartford Railroad and the New York Central

Railroad issued many millions of notes running for three or five years. When they fell due, the corporation managers felt that interest rates continued higher than they would be later, and refunded the first short-term securities with new issues running for similar periods. As a permanent method of financing, a constant succession of short-term notes would be expensive. In addition to the interest the investor demands, the corporation has to bear the cost of selling each issue.

Without intending to indicate any special reason for the term, we shall name several important issues of exceptionally long life. Lake Shore & Michigan Southern first mortgage 3½s (dated 1897), due 1997. Missouri, Kansas & Texas first and refunding 4s (dated 1904), due 2004. Also of the same road the first mortgage 4s (dated 1890), due 1990, and second mortgage 4s (dated 1890), due 1990. Morris & Essex Railroad first and refunding 3½s, guaranteed by the Delaware, Lackawanna & Western (dated 1900), due 2000. Texas & Pacific Railway first 5s and second consolidated 5s (both dated 1888), and both due 2000. Norfolk & Western Railway first consolidated 4s (dated 1896), due 1996. St. Louis Southwestern Railway first mortgage 4s (dated 1891), due 1989. Union Pacific

Railroad first and refunding 4s (dated 1908), due 2008. Manhattan Elevated Railway 4s (dated 1890), due 1990.

Fashions in the term of securities change. At one time for no very well-defined reason investors like those of long life, at others those of short life. Consideration of what the fashion is will also influence the decision on the term of the security. The fashion probably has little or no relation to any conscious thought about probable advance or depreciation in the future value of gold. An investor might well reckon with that question; though with doctors disagreeing, we can hardly wonder at the investor's refusing to take much account of the matter.

If the managers of the corporation plan to make a general mortgage issue under an open mortgage with a large amount held in reserve for refunding existing issues, the bonds must bear a date long enough to cover all the underlying issues and cover a period beyond sufficient to make them worth while as the means of the refunding operation.

Bonds of corporations operating under franchises limited to a fixed period should mature well within the life of the privilege.

Right to redeem: The right to redeem bonds some time before the obligation to pay them matures may perhaps properly form part of the discussion of the term they are issued for. We have several times mentioned the desirability from the corporation's standpoint of retaining this right. When the first provision for financing shows itself insufficient, power to redeem the issue as a whole may become important in order to provide a basis for new financing. If the corporation's credit improves more rapidly than the organizers anticipated, the right to redeem may become important in order to enable them to take advantage of the improved credit. It may be that they anticipated the improvement in the credit, but could not at the time place sufficiently short-term securities to advantage.

The right of redemption of any part of the issue, in addition to the right to call the issue in its entirety, may appear desirable for sinking-fund purposes. We discuss this under "amortization." Instead of the right to redeem in part, with the option of purchasing in the open market for sinking-fund purposes, the trust deed may obligate the company to call at the stated price the bonds for the sinking-fund.

Commonly the right of redemption in itself counts as a disadvantage in the market, and the corporation offsets this disadvantage by placing the call price of the bonds somewhere above par, as 102, 103, 105, sometimes even as high as 110. Assuming that the corporation sells the bonds at a discount, their redemption before maturity would from the standpoint of mathematics be an advantage rather than a disadvantage, for then the investor would be getting the benefit of his discount within a shorter time. From the standpoint of the corporation this means paying a higher basis interest. The right of redemption presumably limits the possibility of an advance in the market price of the bonds to the call price. No one will pay a price for a bond and run the risk of having the corporation call it at a lower price within a very short time. When there is no obligation to call, and the likelihood is improbable, the price of the bonds does sometimes rise above par. A right of call also presents the disadvantage to the investor of uncertainty as to the term of investment and the possibility of imposing on him sooner than he anticipates the care and labor of making a new commitment of his capital. This would be a stronger objection at a time when long-term bonds are in favor. Generally it ought not to weigh very heavily against the bonds in the market. Barring this last objection, and assuming the investor content with the possibility of his bonds going as high as the call price, he ought to regard the possibility of redemption prior to maturity as an advantage. Indeed, French investors regularly do.

Making the call price above par is rather cumbersome and something of a matter of self-deceit on one side or the other, seller or buyer, or possibly both. If it is improbable that the corporation will call them, whatever disadvantage the right of call might be supposed to make ought not to weigh much against the market price. A probable exercise of the right of call ought to adjust itself as readily and no more to the disadvantage of either party when the call price is par than when it is at a premium.

Interest dates: Corporations regularly pay bond interest twice a year. Compilers of "basis" tables showing the computed actual return bonds make on the capital invested in them assume a semiannual payment of interest. Months run in couples in the minds of those dealing in bonds as a business. Those complementary months in order are January and July, February and August, March and September, April and October, May and November, June and December. A corporation issuing bonds will ordinarily choose to pay interest in those months in which the nature of the business is most likely to provide the funds, or to make one of the dates come near coinciding with the close of the corporation's fiscal year. The big dates, on which much larger amounts of interest are paid than at other times, are January and July, and the requirements for funds to pay interest and dividends at these times make a special demand on the money market. Generally people like to get their incomes at these times. The interest dates of a security may make a difference with individual investors, who may like to have their incomes paid at special times, or may wish to place their investments so as to have their incomes distributed through the year. Sometimes the less frequent interest dates, like March and September, are chosen to meet this demand.

Registered and coupon: Though investors fully understand the difference in form between registered and coupon bonds, they do not understand so well all the consequences of the two forms. The distinction in form is simple enough. A coupon bond has attached to it a sheet of what in effect are small promissory notes representing the interest. One falls due each interest date. To collect his interest the owner must "clip" his coupon and forward it, presumably through his regular banker, to the place of payment named in the bond and coupon for collection. Transfer of title requires no formality. Property in the bond passes by transfer of the document. A registered bond, on the other hand, has the name of the owner entered upon it, and also on the books of the corporation, kept either at the office of the corporation or by some bank or trust company acting as fiscal agent of this corporation. The company thus has the address of the bondholder and at the proper dates mails the checks for interest to him. Ownership of a registered bond can be transferred only by changing the name registered on the company's books. That is, with respect to the transfer of title, registered bonds stand in the same position as stock.

Relative advantages of the two forms from the standpoint of the investor are the ready transferability of coupon bonds, and the safeguarding from theft of the registered form. Many considerations, however, argue strongly in favor of the coupon form. Owners of registered bonds may find in the comparative difficulty of transfer a greater disadvantage than they anticipate. It may cause delay in selling, and especially such delay in getting the proceeds of a sale as to be embarrassing. A broker cannot safely sell until he is certain there will be no difficulty about effecting a transfer. The corporation's agent for registry, if competent, is bound to be extremely careful about his authority to transfer, and may cause long delay in effecting a delivery by insisting on better evidence than that first supplied him. Procuring a transfer in the case of settling an estate always causes considerable trouble. A dealer cannot safely register a bond in the name of the purchaser and send it forward with draft for collection. The registry fixes title, and legal situations unknown, perhaps, to the purchaser as well as to the dealer, may intervene to deprive the dealer of his lien. Very possibly before payment and delivery the purchaser may die. In that event a great deal of trouble and long delay may take place before the dealer can get paid.

From the standpoint of the purchaser registration may affect the situation of his estate with regard to the inheritance tax. In one case a man in New York State left his property by will to a younger man, whom the testator had always treated as his son, but never formally adopted. Some bonds of a corporation of another jurisdiction formed part of the estate. The jurisdictions took different views of the situs of the property represented by the bonds. Under the law of the jurisdiction of the corporation property in a debt has its situs where it is owed, and the bonds therefore formed an estate of the testator in that jurisdiction. According to the law of New York State the situs of a debt lies at the domicile of the creditor, and the bonds therefore formed part of the testator's estate in New York. As a consequence the estate had to pay an inheritance tax on those bonds in both jurisdictions. To aggravate the situation the tax was heavier in both jurisdictions because of the collateral inheritance. The point of the story is that the testator, against the advice given on general principles by the dealer selling the bonds, had insisted on having them registered. Though the law would have been the same for coupon bonds, the situs of the corporation would have had no means of acquiring jurisdiction to enforce its tax. As it was, the agent for the transfer had no right to make it without evidence that the estate had paid the inheritance tax. In such a case as this it would hardly be accounted moral turpitude to dodge one tax if possible. Jurisdictions are much in conflict over this very point, and for that reason alone, if for no other, it would be well to keep on the side of safety by not registering. Some investors, however, insist on having registered bonds.

Interchangeable: Because some investors want registered bonds and others will take only those in the coupon form, a corporation confers a privilege of some value to the purchaser in making its bonds interchangeable. If that is the case the corporation will, on request from the holder of a bond in one form, deliver in its place a bond in the other form. Usually only the big corporations with large bond-issues outstanding extend this privilege. To carry it out requires considerable trouble on the part of the corporation or its agent for making the transfers.

Registerable as to principal: Many corporations, perhaps most with bond-issues under a number of million dollars, do not issue bonds registered both as to principal and interest, but issue coupon bonds which are registerable as to principal. When issued, the bonds are all alike coupon in form, but have blanks on the back in which the name of an owner may be indorsed. The corporation provides for entering this name on the company's books, and the bonds become registered as to principal. Coupons remain attached to the bond, and interest is collected by their means as in the case of any coupon bond. The coupon bond form presented for illustration provides for such registration as to principal.

In a few instances corporations have issued bonds only in the coupon form, but provided for detaching the coupons and leaving them in the possession of the corporation or its agent, and indorsing the name of the owner on the body of the bond and entering his name on the books of the company as the registered owner. The bond then becomes registered both as to principal and interest. By indorsing it as payable to bearer, so entering it on the books of the company, and reattaching the sheet of coupons, the company can transform it back into a coupon bond. This requires practically no more trouble than simply registering as to principal, and is perfectly feasible for a corporation with a relatively small amount of bonds outstanding. Bonds registerable as to principal only may regularly be retransformed into full coupon bonds by indorsing to bearer and entering them on the books of the company as bearer bonds.

Domicile, or place of payment: The bond form presented as a specimen makes both principal and interest payable at the office or agency of the company in the city of New York, or, at the option of the holder, in London, Frankfort, Berlin, Amsterdam, France, Belgium, and Switzerland. Since the particular issue of bonds represented by the form was intended especially for the European market, it was made payable in rather more places than usual. If a bond is intended to be sold in England or in Europe, it is regularly made payable in London and, say, Berlin, as well as in New York. On account of the possibility of avoiding taxation, French investors rather like to have their income payable in London. Therefore it is not so important, in order to effect sales among the French investing class, to have the bonds payable in Paris.

Likewise, if it is intended that a bond be sold entirely in this country, it may have more than one place of payment. It may be that the bankers handling it expect to sell it mainly in the Middle West. In that case Chicago will be one of the places of payment named. Part of the issue, however, may be sold in the East, and in that case the bonds will also be made payable in New York.

Usually the place of payment is made more specific than simply stating the city. Ordinarily the bond states that it is payable at, say, the Columbia-Knickerbocker Trust Company, in the city of New York. It is then sometimes said to be "domiciled" at the Columbia-Knickerbocker Trust Company. In the case of most of the smaller issues, at any rate, the trustee is made fiscal agent for the purpose of paying interest, and the bonds therefore domiciled with the trustee. Larger issues may be domiciled with some institution other than the trust company acting as trustee. Those corporations having such large amounts of securities outstanding as alone to require the services of a whole staff, maintain their own fiscal office at their general head office, and make the American domicile of their bonds at that place.

Taxes: To discuss the taxation of securities would require a whole treatise to itself. Such a provision as the sample form of bond contains commonly appears in bonds. It has little or no actual present practical effect, and is valuable to the holder and contains something of a menace to the corporation in event of a change in the system of collecting taxes. No matter what the taxation provisions of a particular jurisdiction may be, bonds commonly sell at prices based on the assumption that the purchaser does not pay taxes on them. In event of any attempt being made by the Federal Government or any of the State Governments to collect an income tax after the English fashion "at the source," presumably such a promise to pay interest without deduction for any tax which the railroad company may be required to retain therefrom would work to impose the burden of that taxation, which might amount to 2 per cent, on the corporation and to relieve the bondholder. That would probably be so, at any rate so long as the railroad is its own fiscal agent for the payment of interest as in this bond.

Whether on the appointment of some financial institution as agent to pay interest, the collection of taxes at the source, that is, the requiring of the paying agency to deduct from the interest the amount of the tax and pay that amount over to the Government, would be a tax which the railroad company was required to retain therefrom, might be a matter of uncertainty, to be known only after adjudication. Our multiplicity of taxing jurisdictions, however, combined with the wide scattering of the securities of any particular corporation, makes improbable any wide attempt to collect any heavy taxation at the source. The State of Pennsylvania does collect a small state tax from Pennsylvania corporations on securities of the corporation known by the corporation to be in the hands of Pennsylvania investors. As matters stand, and as they seem likely to continue, such a tax provision as this in a bond seems not likely to have much effect.

Trust deed: Such a reference to the trust deed as this, "For .... the rights of the holders of the bonds, and the terms and conditions in which the bonds are issued, reference is made to the said mortgage and deed of trust," definitely makes the provisions of that document part of the terms of the bond. American investors might well be more insistent on looking up the stipulations of the trust deed. They might sometimes find there provisions giving a majority or even a minority of the bondholders a right to do things materially affecting the lien and encroaching on the regular rights of a security holder. The chapter on the "Instruments of Corporation Finance" emphasized the limitations on the shareholders' control which the trust deed might make in favor of the bondholders. Though that is the usual situation, a trust deed may, and sometimes does, place limitations on the rights of the bondholder in favor of the shareholder.

VII

THE MARKET AND THE PRICE

Everything a corporation can do to make its securities more marketable will help it command a higher price for them. Though that sounds rather a truism, marketability has something of a special meaning with reference to securities, and a corporation can do many things of detail, besides offering its essential assurance of payment, to give its securities a broader appeal and therefore help them pass more readily from hand to hand.

The discussion at this point is not dealing with the fundamental things in connection with corporation security-issues. The more a corporation offers of income and control and the less of risk, obviously the readier acceptance its securities will find. We have already dealt with these fundamental considerations in the chapters on "The Instruments of Corporation Finance" and "Trading on the Equity." By price, too, we mean here the essential thing which is measured, not by the market quotation in dollars, but by the return the man who furnishes the capital demands for his funds. What sounds complex in words is simple enough in figures. This is only to say that a 4 per cent 20-year bond at 91, yielding approximately 4.70, is selling essentially higher than a 5 per cent 20-year bond at 102½, yielding approximately 4.80.

If a security has a quick close market it possesses a quality of value which will add to the price people will pay for it something beyond what they would pay for the amount of control and freedom from risk the security offers. A "quick" market is one in which a security may be sold without delay. The "closeness" of a market depends on how great a difference there is between the buying price and the selling price of a security at any given moment. A market for a particular security may be so close that the buying and selling price are only an eighth apart; in that case a man would be able to buy at, say, 99⅜ and to sell at 99¼. Such a transaction is often possible in bonds of the big, active, railway issues, and results from the competition for business among dealers and brokers off the stock exchange. Since members of the stock exchange cannot do business for less than one eighth commission, such a transaction would be closer than any that could be put through the exchange, where there would have to be a real difference of a quarter of a point in price just to cover commissions. However active and steady quotations might be on the exchange, so that a whole series of transactions went through at $99\frac{1}{4}$, and apparently a man could either buy or sell at that price, really the seller would be getting $99\frac{1}{8}$, after paying his one-eighth commission, and the buyer for the same reason be paying $99\frac{3}{8}$. Off the exchange dealers and brokers who are not members can "split" the commission, and in order to put through a transaction frequently do. Indeed, they sometimes do business on so small a profit as one thirty-second of one per cent. Such a close market as this represents the extreme and carries with it the corollary of being a quick market. Since it is the degree of stress in the working of demand and supply on each other that makes both, the speed of a market bears a direct relation to the distance apart of a market. A quick market is at the same time a close market, and a slow market is a wide one. These are expressions of a general state of affairs. In the market for any particular security, it may be necessary to sacrifice something of speed in order to get the closest possible quotations, and conversely to abandon something of closeness in order to get the greatest speed.

Transactions such as those just mentioned indicate the highest degree of closeness.

With regard to quickness of a market it may be possible in a given security to put through a transaction either way, buying or selling, in a matter of seconds. A security with a wider, slower market might have its buying and selling prices half a point apart, and require several hours to find either a seller or a purchaser. So on, all the way to a difference of from five to ten points between the buying and selling prices and a time of several days or weeks required to find perhaps either seller or purchaser. Beyond these points of market width and slowness, a security can hardly be said to have any market at all. It may nevertheless involve little risk of loss of income, and, if a bond or other evidence of debt, of principal, and may be yielding the holder an excellent return.

A quick, close market presents an element of distinct value, and the quicker and closer the more valuable. Even if a buyer of securities intends to hold them permanently as an investment, it is, nevertheless, worth something to him, though maybe not the price he would have to pay, to be able, in event of an unforeseen contingency, to sell his security without too great delay, and at a price not too remote from what he would have to pay for it if he were a buyer. Marketability becomes more and more important as the security is held by a man actively engaged in business with an uncertain demand for funds, or such a financial institution as a bank, which may need to realize on its assets at any time. Every investor must decide for himself in how great a degree he requires marketability, and how much it is worth to him.

It is not our purpose to go into a general discussion of the elements of a securities market, but simply to point out the effect of marketability on price in order to lead to a discussion of things, apart from considerations of income, control, and risk, which may affect the position market-wise of a particular issue.

Magnitude of an issue exercises a large influence in the creating of a market. As between an issue of $1,000,000 and one of $20,000,000, each having the same ratios of equity, earning power, and all the other matters that go to make up the amounts of risk, income, and control in each, the larger issue will probably in the long run command the higher price. Its very size means that more people must become familiar with it and interested in it. The volume of dealings after it has once been placed will be greater, and dealings make the market. So the sheer size of an issue influences marketability.

This depends on the size of the enterprise, however, and its demand for capital, and is not one of the matters the corporation, as such, really exercises control over, except, as mentioned in the chapter on "Expansion," through looking forward to future needs, and authorizing more securities of a given class than it immediately issues.

A corporation planning an issue of securities has, however, an opportunity to arrange it in various ways, aside from the fundamentals of income, control, and risk, that will help the securities find a broader and more active market. Obviously we do not use the term "broader" here as synonymous with "wider" as already used, but to indicate the security as appealing to more people.

As one means to this end the corporation can prepare the issue in a way to meet the requirements of the stock exchanges, say the New York Exchange, or more than one, and through its bankers get the issue listed. Though such a course opens to the issue the possibility of being traded in on the exchange, it does not by any manner of means insure such dealings. Unless the issue is of some magnitude, and has already excited considerable interest among investors, news of the listing is likely to be almost the last thing heard of it from the New York Exchange. The name will continue to appear on the official sheet with a nominal bid and asked quotation, but with no reported transactions whatever. Quoted bid and asked prices are likely to prove wholly illusory on any attempt to put through a transaction. An offer to purchase at the quoted asked price may fail to bring out any of the paper. At the same time an offer to sell at the quoted bid price may fail to uncover any takers. Listing an issue of from one to several millions in the New York Stock Exchange simply courts a general neglect. Brokers on that exchange stand ready and expect to deal in the entire list, and do not much form into groups especially interested in particular issues, and that fact accounts in part for the neglect of the smaller amounts listed. The organization of the stock exchange market as it stands at present in New York works against them.

Dealers in securities on the London Stock Exchange tend to split into groups, each interested mainly in a particular part of the list. Doubtless the custom of doing business through "jobbers," who, when approached by a "broker," do not know whether the transaction the broker has on hand is a buying or a selling one, and therefore name both the price at which they are prepared to sell and that at which they stand ready to buy, works in favor of the smaller issues. A jobber must at the same time be interested in both sides of the market. Brokers there do more in the way of acting as actual investment advisors to their clients than here. They feel the need of being well acquainted with the securities they deal in, and in order to get the more intimate acquaintance tend to restrict their dealings to a smaller number of issues. Those particularly interested in Canada, for example, make a point of dealing in "Canadians," and so on. When even a small issue is listed on the London Exchange it has from the start a little group of brokers interested in it. As a result, issues amounting to no more than from one to several million dollars may have a fairly close and active market. It would be possible there either to buy or sell a bond or share of such issues within, say, a day or two, at not more than a point apart for the buying and selling price.

In New York, on the other hand, bankers are reluctant to list small issues on the exchange, because the listing, instead of helping to build up a broader market, simply increases their difficulties in "protecting" the market. The investment business is not yet with us as well developed and as well understood as in England. On account of the lack of a coterie of brokers interested in a particular issue both on the buying and on the selling side, some holder in haste to realize might sell a security at a sacrifice price, and the low quotation made and published would unsettle all the other holders and make them inquire anxiously of the issuing banker about the value of their security. The situation all comes down to the fact that the issuing banking-house itself offers the only real market for most relatively small issues. Eagerness of such houses for business has developed a system of trading whereby an investor is induced to swap securities he already holds for some of the specialties of the particular banking-house seeking to do business with him. Listing the small issue on the exchange simply offers a rival house a place where, concealing its own hand in the matter, it can offer the other banker's "specialty" for sale, and so practically compel the issuing house, in order to protect the market, to buy back its own securities. In the language of the street it has to "hold the basket." The time does not now seem close at hand when the New York Stock Exchange will afford a market for the relatively small issues.

A corporation putting out an issue of $15,000,000 or more almost must prepare the issue for listing on the New York Exchange. Investors will think it rather queer if it is not listed. It does not follow, however, that the stock exchange will offer the only, or even the principal market, or, for that matter, even an important market for the security. The discussion at this point does not refer to stock. When shares are listed, especially large issues, the exchange becomes practically the only market for them; but even for those bonds most actively dealt in on the exchange, the transactions there are probably only a very small part of the total transactions in the issue. Dealings over the telephone from securities house to securities house, and by the street trader going from office to office, learning of a buyer here and a seller there, on the average enormously exceed the transactions on the exchange. Such exchange transactions as there are give each day a published quotation which affords an index of the course of the market in the security. An investor who considers marketability an important matter wants that daily published quotation to keep him informed of what he can do in case he should want to realize. Exchange dealings like this in the larger issues do not present the disadvantages to the issuing house that the listing of smaller issues does, for several reasons. In the first place, the large issues probably are widely underwritten by bankers who are themselves dealers in securities, and extensively subscribed for by smaller dealers, who besides getting the regular dealers' quarter-point concession off the price at which the issuing bankers publicly place them on the market, count on the demand being so large as to send the market price somewhat above the issue price. From the very start a large number of dealers are interested in the security, and their efforts immediately establish a trading market.

When an issue is small, however, a single banking-house can, and frequently does, handle it without the help of other houses or dealers. At the most, two houses join in marketing the issue. Such underwriting as may be done is not by bankers and dealers who would be interested on their own account in creating a market, but by capitalists who are ready to assume the kind of a risk involved in that special security. Except in the case of an enterprise in the construction stage, that is, without an established earning power, there is probably no underwriting at all. The issuing banker has to bear alone all the burden of creating a market.

Again, investors purchasing securities of large issues expect to take the risk of some fluctuation in the market, of a possible decline in price. When the market falls off somewhat from the issuing price, they do not hold the issuing house blamable. They recognize that when they bought they then accepted the risk of the market. They understood that they were called upon to exercise some judgment both of the merit of the security and of general market conditions.

Since in the case of small issues the house putting them out *is* the market, purchasers hold that house responsible both for the intrinsic merit of the security and for its market position. Because the purchaser usually is not as well situated to judge of either the soundness of the enterprise or the general state of the market for a security of the class offered, it is not unfair that he should place greater responsibility on the issuing house. From the very magnitude of the corporation putting out large issues the investor knows, or can know, something about it. Reports of its earnings are published in the daily papers, or, if not in them, at least in the financial papers. There, also, are published quotations of securities of a similar kind for him to judge the general market condition from.

Such considerations as these govern the matter of listing in order to extend the market for an issue. It is desirable to list the larger issues, and therefore they must meet the listing requirements in form.

Whether prepared to meet the requirements of the New York Stock Exchange for by steel engraving, etc., or not, a security should at any rate be prepared in such a way as to present a good appearance and to offer some reasonable obstacles to counterfeiting. Aside from questions of wear and tear, since most securities have rather a long life to run, to avoid decay they should be printed on a very high-grade paper. If this paper can be of some special make, as an additional precaution against counterfeiting, so much the better. Though for a small unlisted issue it may not be thought necessary to have the entire design especially prepared, it should at least be printed from a carefully guarded plate. A high-grade piece of steel engraving probably makes the best precaution possible against counterfeiting. Considering how poorly many securities are prepared, how ready a market many of them have, and how little they are scrutinized to discover possible counterfeiting, it is a wonder that "green goods" men do not direct more of their energies in this direction rather than confining themselves to the carefully prepared and closely scrutinized government and national bank notes. However, there have been notable cases of counterfeiting securities, and the danger is well worth guarding against. Knowledge of the existence of this danger on the part of some investors, and an appreciation of a good appearance on the part of all, does, however, add to the marketability of a security, and it commands therefore a price much more than enough higher to make up for the cost of a good appearance.

Whether bonds shall be issued under an open or a closed mortgage presents another consideration of marketability. Doubtless the investing public generally prefers a closed mortgage. It does not want to take the chance of having the protecting equity made thinner through the issue of further securities of the same rank as theirs. Besides, it fears that the bringing-out of additional amounts of the same security will have the natural effect of increasing the supply on the market, to depress the price. Even provisions in the trust deed assuring the maintenance of the equity do not overcome the handicap on that account. They require too much explaining. A "closed mortgage" tells its whole story in two words. The chapter on "The Instruments of Corporation Finance" mentioned a number of provisions looking to the maintenance of the equity in the event of further issue of securities under an open mortgage. We shall not go more fully into the matter here.

Though the fact that a mortgage is "open" may tend to depress the price of the security, its value in future financing is likely to do far more than offset its immediate adverse influence. Securities with a junior lien would sell at a serious disadvantage. The fact that securities of an issue are already outstanding and have a current market quotation makes a good foundation for more of the same issue. It is hard to assign a relative weight to each of these influences. All this discussion is, of course, apart from the matter of the mortgage being open, technically, because of bonds reserved to retire underlying issues, and refers only to the possibility of issuing more bonds for actual new expenditures on the property. The replacement of the bonds of underlying issues with bonds of the junior issue can work only to the advantage of the outstanding bonds of the deferred security. It is true that if there were not reserved bonds of the new issue, the bonds of the old issue would have to be replaced with some security more remote than the new issue, which in turn would become the prior security with the larger equity protecting it. Since, however, the reserved bonds will not when issued work to the positive disadvantage of the bonds of the issue then outstanding, they are not looked on with such disfavor as authorized bonds to be issued for expenditures on the property.

Since the chapter on "Amortization" went rather at length into the desirability of a uniform issue, that is, all of the same maturity, instead of maturing serially, we shall not go into that matter further here, but mention it now merely because of its bearing on the general subject of this section. The discussion of amortization also mentioned the probable effect on price of making the bonds callable, and of providing a sinking-fund.

Also the chapter on "Form" considers the market effect of such matters as rate, term, denomination, place of payment, and making the bonds registerable and interchangeable. A corporation can arrange all these things in such a way as will give its securities the widest appeal. For example, some people prefer a registered and some a coupon bond. If the corporation provides both, it does not exclude from the number of purchasers of its securities those who strongly prefer one or the other. And the experienced buyer, himself preferring one or the other form, but quite aware that some other investors do not feel the same way, appreciates an interchangeable bond, so that his particular part of the issue may, in case he should wish to put it on the market, appeal to as wide a range of purchasers as possible.

Most of the matters mentioned here as discussed elsewhere will not be mentioned further now than just the reference. The matter of denomination may be worth a few words more. Though a good many issues provide bonds of $500 denomination, $1000 is the standard. It seems improbable, under the present method of selling securities in America, that bonds will be issued much in smaller denominations. The smaller amount will not stand the expense of selling. The only reason for issuing bonds in denominations of, say, $100 is to fit the pocket-books of people who cannot invest $1000 at a time. It costs as much to sell a $100 bond as to sell one of a $1000. A small investor would not, however, pay a higher proportionate price for the $100 bond than the larger investor pays for one of a $1000. If the banker is making a two-point profit, gross, on the issue, he makes a gross profit of $20 on each $1000 bond, but only $2 on the $100 security. Cost of selling and of putting through the transaction on the $1000 bond might be, say, $10. It requires just as much work to sell the $100 man his bond, and the clerical and other work of putting the transaction through are just as great. So it would cost the banker $10 to put through the $100 transaction on which he has made, gross, only $2. He would be doing business in the smaller denominations at a loss.

Because the distributing agents of securities in France are the branches of the big banks, where the small investor keeps his deposit, the seller is closely in touch with the buyer at all times, and therefore it cannot cost nearly as much for the selling expenses of these small transactions in France as in America. There the small investor is legion and well trained. He comes in and buys over the counter. In America he would have to be sold to just as the larger investor is now sold to. The investment banker would have to cultivate his confidence instead of already having it, as in France, because of being his depositary banker to start out with. Until the small investors become more numerous in America, and some changes take place in the methods of distributing securities, probably it will not be worth while to issue bonds in smaller denominations than at present.

Sometimes a corporation can make its securities comply with requirements to meet a special demand. If it has the possibility within its power to comply, for example, with the requirements for savings banks or trustee investments within a particular jurisdiction, it gains immediately the chance of tapping large amounts of loanable capital. For the most part a corporation can do little in the matter of mere arrangement to aid in this direction, but sometimes it can put itself in the proper position. Only a study of the situation in each case can determine what the corporation can do toward this end.

In some jurisdictions a corporation may make its securities tax exempt, and if it can look for a large market for them in that particular jurisdiction, it may considerably help their sale by complying with the provisions for tax exemption. A corporation can make its bonds tax exempt in New York, for instance, by recording them on the payment of one half per cent recording tax. A Pennsylvania corporation can make its bonds tax exempt in that state by paying a small annual tax. By having a Pennsylvania corporation the issuing body, large amounts of railroad equipment securities have been made tax exempt in the state, and thereby appealed especially to the wealthy Philadelphia market. Stock of a Massachusetts corporation is tax exempt in the state, but not stock of a foreign corporation. In order to get that advantage in the important Boston market for investments, some foreign corporations have already taken out new charters in Massachusetts and transferred their assets to the corporation under the new charter. And, by way of a wink at the possibilities, some enterprises, especially holding companies, have organized as unincorporated associations under the Massachusetts law, in order to avoid the federal corporation tax. This, however, is aside from our subject and a general matter of corporate organization rather than especially of corporation finance.

VIII

CAPITALIZATION AND THE STATE

Any state regulation of corporation finance may rest on one or more of three general purposes: —

1. To protect creditors.
2. To protect prospective shareholders.
3. To protect the general public from having to pay an excessive return on capital invested in the business.

Since the protection of creditors is purely a legal matter, it does not enter into the scope of our discussion here. In the chapter on "Watered Stock" we went into the question of protecting prospective purchasers of corporation securities, and shall not take it up further. Our subject at this point is the protection of the general public from the exaction, in the form of rates or other payment for service, of an excessive return on capital.

So far the demand for state regulation of the financial arrangements of corporations in order to prevent a possible excessive charge has not been much made with reference to any but public utility corporations. Although already a few people begin to advocate a more general state supervision of charges, most of those who consider the question so far are content to rely on competition to control the charges of manufacturing and commercial corporations. People rather commonly feel, however, that the state must carefully scrutinize the charges of corporations that are wholly or partly monopolistic, or of an inherently monopolistic nature.

Immediately the question arises, What is a fair or an unfair charge? The usual reply says that a charge which gives more than an adequate return on a fair capitalization is not a fair charge. It goes on to explain that the state must not allow corporations to fix rates to earn a return that on its face appears no more than adequate, but is really exorbitant because based on an excessive capitalization.

Ordinarily the argument does not go much farther than this. It does not bring out any statement of what is either an adequate return or a fair capitalization. Yet it would seem necessary to determine each precisely before it were possible to discuss the fairness of a rate dependent on both.

What is an adequate return? If you want to buy into the railroad business to-day you can purchase Denver & Rio Grande Railroad preferred stock at a price to yield you, say, 7.09 per cent on your capital.[1] Or, if that investment does not please your fancy, you can buy Central Railroad of New Jersey common stock at a price to return you an income of say, 2.85 per cent. Denver & Rio Grande preferred pays 5 per cent dividends, non-cumulative, and the total earnings of the road available for dividends amount to 8.12 per cent on the stock. Central Railroad of New Jersey common pays 8 per cent dividends and the road earns 18.6 per cent on the stock. In the case of the Denver & Rio Grande the fact that you cannot get more than the present 5 per cent dividend, on account of the rate limited in the preference, and the apprehension that you may get less because the earnings are not so greatly in excess of the amount required for the preferred dividends, determine the price you pay for the stock, and consequently the return on your capital. Central of New Jersey, on the other hand, offers you an 8 per cent dividend that you feel absolutely confident of, and the hope that you will get some of the 10 per cent it is earning on the stock beyond that. So you would have to

[1] The fact that since this was written the Denver and Rio Grande has stopped paying dividends on preferred stock and the Wabash, mentioned a little later, has gone into the hands of a receiver, illustrates the element of risk.

pay, say, 280 for the Central of New Jersey stock, but could buy the Rio Grande preferred for, say, 70.

Suppose you try to escape the life of hopes and fears of stocks into the seeming comparative Nirvana of bonds, and get the calming assurance that the railroad must pay the stipulated income. You can take your choice between Pennsylvania Railroad consolidated 4s of 1943 at, say, 103.25, giving you a return of 3.80 per cent on your investment, or of Wabash first refunding and extension 4s of 1956 at, say, 63, giving you a return of about 6.50 per cent.

Obviously we cannot come to a decision about the fairness of a charge by considering simply one class of capitalization, or what the company may choose to pay immediately in dividends, but must consider total capitalization and what the company earns available to pay returns on that capitalization. For the classification of the capital, its priorities, and so on, hardly concern the public in this matter. Let the corporation arrange its capitalization as it sees fit, and trade on any equity it may care to.

Denver and Rio Grande earns, say, 4.50 per cent on its entire capitalization; Central of New Jersey on its entire capitalization earns 16 per cent. Which earns the "adequate return" and which has the fair capitalization? Or is it perchance the fact that neither has either?

The futility of general statements and surface comparisons becomes plain. We cannot determine the adequacy of a return without knowing whether or not the capitalization is fair. Even before that we must settle on something which we can accept on general principles as an adequate return on capital invested in an enterprise.

It is a truism of economics that any given income from capital represents two things: one, what is called true interest, or the return due to capital as such; the other, the premium for the assumption of the risk in employing the capital in any particular direction. In economic theory true interest is the reward for saving, the compensation due to the sacrifice of immediate enjoyment. That part of actual interest which we call premium for the assumption of risk is paid as compensation for hazarding the savings in any special investment.

True interest represents that part of income which the law of supply and demand in relation to capital governs, quite apart from the assumption of risk. If no risk entered into the employment of capital, or if the risks in all uses were exactly uniform, the return at any given moment on all employments of capital would be exactly the same. Such true interest would change from day to day, fluctuating with the demand and supply. This phenomenon clearly appears in the daily prices paid for money borrowed in transactions involving approximately similar risks, as call loans, sixty day prime paper, and so on. Quotations, that is, interest rates, vary from day to day, depending on the amount of money seeking employment of the particular kind, the demand for funds in the particular employment, and the changing nature of the risk due to general business conditions which constantly vary.

Besides the risk of the particular employment, a time speculation risk enters into any commitment of funds. This is only another form of stating that true interest varies from day to day. At the end of the term for which the funds are committed, will capital be more in demand or less than now? Will general business conditions be better or worse? This time speculative risk accounts for the fact that the call money rates and the ninety-day rates on risks essentially similar, except for the time element, vary so widely. Though the longer the time the greater the commercial risk, the speculative time risk in the demand and supply of funds is so much more important that the influence of the commercial time risk can hardly be traced.

All this elaboration of statement simply attempts to get at the elements we must consider in finding the basis of true interest, plus the time speculative risk, to which we must add the premium for risk in the particular employment in order to arrive at our desired adequate return.

We cannot eliminate the time speculative risk. Because the element of time necessarily enters into every transaction, that speculative risk necessarily inheres in every transaction. Since a corporation employs its capital as a whole for all intents and purposes in perpetuity, it seems that the particular time risk to consider should be that inherent in perpetual securities like stocks. Risks of the special employment, however, enter into all such securities to so high a degree that it is impossible to see from them anywhere near true interest plus the time speculative risk.

Though really true interest would have to be on a loan without the time risk, that is, on a call loan, we will hereafter speak of true interest as if it included the time speculative risk.

We might consider English consols. They offer a perpetual security with a minimum of special risk. They yield an income of, say, 3.20 per cent. Probably this is too low to take as a fair return on a perpetual commitment of capital without special risk, because particular privileges such as exemption from taxation, being a legal trustee investment, and so on, much more than offset whatever special risk may be considered as inherent in the security.

Giving up the idea of finding a perpetual commitment of capital with a relatively small special risk, let us consider some long-term securities. United States Government 3s of 1961, which lack the circulation privilege, yield a little less than 3 per cent. Again, however, privileges creating special demands for these bonds probably reduce the income from them below normal true interest. Loans like those of the cities of New York, Boston, Philadelphia, and Chicago yield, say, from 3.80 to 4.20 per cent. Such loans involve relatively little special risk. Considering the special demands created by the fact of tax exemption, and being a legal savings-bank investment in those states which most closely restrict the investing of such institutions and at the same time have the most savings-bank funds to invest, it seems highly probable that the effect of such demands more than offsets the slight special risks in securities of this kind, and that they yield a return really less than the estimated true interest on such a long-time commitment. At best that must be only a guess. If a hazard were to be made as to what, at the present time, would be a fair true interest rate on a long-time commitment of capital, the surmise might place it as somewhere between $4\frac{1}{8}$ and $4\frac{5}{8}$ per cent. This offers a leeway of one half per cent. Such a possible variation, however, would make a considerable difference to an investor. It amounts to $500 a year on $100,000.

If it is impossible to arrive at a fair estimate of true interest, even on a commitment of any particular length, to say nothing of a perpetual commitment, what can we do with the much more difficult problem of estimating a fair compensation for assuming the special risk of the business? We cannot arrive at it as insurance risks are determined. We should find it of no use to appoint an actuarial board to make estimates. There are not a sufficient number of enterprises operating under approximately the same conditions to work out a law of averages. The only possible estimate of this risk is the appraisal at large. In the particular circumstances, so far as he can ascertain them, what does each investor compute it? These opinions working on each other, and forming a market, establish the common estimate of the risk. Events frequently prove this conclusion wrong. If any government agency should attempt estimating the risk of enterprises, how much more frequently would they be right than the consensus of opinion expressed in the market?

An estimate by a governmental agency in the case of a projected enterprise could be effective only in one situation. If the government estimate were higher than a market estimate, it would not affect the market estimate, and the project would go ahead just as if the Government had made no estimate at all. When the government estimate chanced to coincide with that of the market, we should have exactly the same result. If the Government, however, should estimate the risk lower than the market, and fix the adequate return on capital correspondingly, investors would not put their funds into an enterprise in which they estimated the risk as greater than the possible return would justify, and the project would never get under way. So much for the effect of any attempt by a government agency to measure the risk of a projected enterprise. How about an established business? Should the Government be permitted to take advantage of "hindsight," and after the event has proved of a business that its promoters were justified in undertaking it, step in and say that the measure of return shall be the measure of risk now apparent? Or should the Government make what we may call a retroactive estimate of the risk, and, from the standpoint of the present, attempt to measure the risk originally assumed? Human judgment cannot be counted on to be fair under such circumstances. It is so easy now to look back and feel sure that the telegraph, the telephone, the Union Pacific Railway, in fact, practically any established business, was bound from the start to be successful in a large way. Yet at the beginning of all these things there were more thousands who believed that the anticipated profits did not justify the risk to be taken than tens who believed that they did. It is impossible from the standpoint of the present to get the same view backward that the standpoint of twenty-five or fifty years ago presented forward. It is unfair to get the measure of reward for a risk assumed in the past by a present estimate of the risk now existing.

We have then several very distinct difficulties in any attempt, assuming that the capitalization is fair, at deciding on what constitutes an adequate return. We must first determine what the "true interest" should be on a permanent committing of capital. Our judgment of that must necessarily vary from day to day as circumstances shift, and the outlook changes. No statutory fiat could in any fairness determine that true interest should be regarded for a period of years as so and so. Assuming, however, that true interest could be established, we have seen the difficulties in attempting any estimate of the risk. Fixing the conditions, including the return on capital committed, would not, with regard to new enterprises, be unfair to the capitalist contemplating putting his funds into them, because he has the option of committing his capital or not. If such conditions with regard to new enterprises were made so stringent as to prevent the embarking of capital in them, they would tend to give too great an advantage to established businesses by relieving them of potential competition. We have pointed out the difficulties of being fair in any attempt to make artificially, as by legislative enactment, the conditions under which an established business shall operate, including the return on capital, different from those under which the capital was committed to the enterprise. It is not easy to see a solution of the difficulties, unless, indeed, something might be done along the line of the long-term franchise, guaranteeing against a change of conditions for a sufficiently long time for the investor, or the enterprise in the investor's behalf, to set up an insurance fund against the risk of change. Whatever change may be made, it should not throw the entire burden on the people who committed their capital to an enterprise relying on the conditions as to freedom of action in charging for services permitted at the time the project was taken up. Though it may not be good public policy to permit the enjoyment in perpetuity of conditions that have proved more advantageous than could have been anticipated, it is likewise not good public policy to make those conditions immediately more onerous than anticipated.

It must be kept in mind, too, that the conditions under which one enterprise does business are never just like those under which any other enterprise operates. Therefore, the estimation of risk, and consequently of an adequate return, must vary with every property. Obviously no statutory enactment could cover the situation. Only some agency that could consider the merits of each case could handle the matter. Up to the present, so far as the Government has dealt with the matter, it has done so, for the most part, in just this way through such agencies as the Interstate Commerce Commission and the various state commissions on railroads, and other public service corporations.

To go on with the discussion, let us assume, however, that it is possible in some way to determine what is an adequate return on capital committed to a particular enterprise. That does not get us halfway. We have next to consider what is the fair capitalization on which such an adequate return shall be paid. It may seem, in changing from the word "capital" to "capitalization," that we are shifting our premises. The further discussion, it is believed, will show that we are not indulging in this logical fallacy. Though it may prove more convenient to speak in terms of capitalization, the actual question is always as to what the capital, the assets value, in the enterprise really is on which a return is to be allowed.

Much confusion has come in at this point over the question of securities sold at a discount. One set of people contend that every such transaction represents a capitalization watering operation, another that the discount is a necessary part of the cost of construction. Neither is right, as a great many people, including both the managers of some corporations, and also some public service commissions, are well aware. The discount has nothing to do with capital cost, but is simply and entirely deferred interest and represents part of the investor's estimate of the risk involved. The discount has to do entirely with the question of adequate return and not at all with the question of fair capitalization. Though it may conceivably be a matter of public concern as to how far it is desirable to go in deferring interest in this way, such deferred interest should be confined to its proper place in a discussion of return on capitalization, and not be allowed to confuse by coming in at the wrong point. It may be remarked, however, that the various statutory provisions against selling securities at a discount have an element of stupidity in them.

Discussion of the proper basis for a fair capitalization, or return for capital committed to an enterprise, runs along two broad lines. One is that it might be on *original cost;* the other that it might be on the *cost of reproduction.* Both have their objections as a basis of determining the capital investment, or capitalization, on which the adequate return is to be allowed.

Let us consider first the fairness of original cost as a basis. The special objection to it is that it deprives the corporation of the benefit of the unearned increment, or increased valuation due to the growth of the community. The corporation, especially if a railroad corporation, may itself have been the most important influence in bringing about such an increased valuation. The number of people who believe that a return to the railroad, or other public service corporation, based on the original cost would be a fair return, is much greater than the number of people who believe that no unearned increment is fair.

We have just this situation. John Smith owns an acre of property on the prairie worth $10. A railroad builds near this location and establishes a station and switching-yards close at hand. Smith's acre becomes desirable as a site for a grain elevator, and shortly is worth $1000. The community grows up, and land equivalent to that which the railroad bought for yards cannot now be bought for less than $1,000,000. When the corporation was buying prairie land it did not have to pay, perhaps, more than $1000 for its entire location. By this time, Smith's property, which jumped immediately to $1000 in value, has now advanced to the point of being worth $10,000. Those who advocate an adequate return on a fair capitalization, and would base their fair capitalization on the original cost of the property, would say that Smith is entitled to earn an adequate return on $10,000, but the railroad should be permitted to earn only an adequate return on $1000. Smith may earn ten times as much as the railroad, in face of the fact that his original investment was only one hundredth as much. Yet Smith, we will assume, has not done anything himself to increase the valuation, but the railroad has been the most important contributor to the welfare of the community, and the community would not even have come into being at all except for the railroad.

Not to permit owners of the railroads or other public service corporations, that is to say, their security-holders, to get any benefit from the unearned increment, is to place this class in the community at a disadvantage as compared with other classes. Though that would work no harm if it were made to apply only to projects undertaken hereafter, it would work a distinct unfairness if made retroactive and applied to those enterprises which were entered upon in the definite expectation of getting the benefit of such increases in value. Such a probability was one of the conditions surrounding the enterprise at its initiation, which its projectors certainly had a reasonable right to expect to continue. If that condition had not existed it is conceivable that they would not have engaged in the undertaking.

Cost of *reproduction* would perhaps give a more equitable basis for that fair capitalization sought after as a foundation for state regulation of rates. Such a basis would treat the investors in the securities of public service corporations on a level with other owners of property in the community, and give them the benefit with every one else owning property, of the unearned increment of value which the community activity has created.

Perhaps we should have defined earlier the basis of capital cost to be taken, whether original cost, or cost of reproduction, or any other cost is assumed as the proper cost principal. It should mean actual moneys paid out, in the case of original cost, or that would be required to be paid out in the case of the cost of reproduction, plus a proper charge on moneys expended for interest up to at least the time of going into operation. As already pointed out, such interest does not include the entire discount on bonds sold. On bond money only the basis rate should be allowed during construction. A rate at least as large as the basis on which the bonds were sold should be allowed on funds represented by stock. Inasmuch as such funds carry a larger risk, the interest rate allowed to be charged up to the cost of construction on account of them might well be larger.

A valuation estimated on the cost of reproduction alone might well be unfair, in that a decrease in the cost of materials, or a fall in wages, might make the reproduction cost lower than the original. As against this, however, it may be argued that a monopolistic public utility would be little or no worse off on such a valuation, for the purpose of basing an allowable return on capital, than a manufacturing enterprise without state regulation of charges, which, nevertheless, would be liable to competition from a plant built at a lower capital cost under similar conditions of construction. Danger of unfairness lies, too, in mistaken estimates of the cost of reproduction. Those having to do with the financing of new enterprises know how difficult engineers find it to estimate construction costs, and how commonly they underestimate. If this is the case with the most expert engineers whose reputation is at stake, and whose figures will be tested by the actual performance of the work, it is easy to see what injustice might be done by engineers estimating on behalf of the state, whose figures will not be checked up by the actual carrying-out of the work.

Cost of *replacement* affords another possible basis of valuation. Cost of reproduction, which we have just been considering, contemplates the present cost of building an exactly similar property in the same location. Cost of replacement contemplates the present cost of building a property that will perform the same service as the property now in existence. We see at once that cost of reproduction and cost of replacement may come to very different sums. Engineering mistakes, now easy to see and to avoid, may have made the present property cost more than would one built new at the present time that would do as much work. Even more likely, new inventions or devices for doing the work may make it possible to construct a property at a much cheaper cost that will perform that same service. Again, this basis of valuation applied to public service corporations would not, perhaps, in its general tenor, be unfair, because capital invested in a manufacturing corporation is subject to the same possibility of loss through similar improvement in methods, giving a new competitor an advantage. If valuations are to be based, however, on analogies to manufacturing corporations, these additional elements of risk need be kept in mind in determining that compensation which is to be counted fair.

With these very general considerations in mind, indicating the difficulty of the problem, we may now go on to see what some of the states have done through commissions in dealing with it. What has been stated will afford any one a basis for a critical examination of their work. On the other hand, the statement of their work will show many other things needful to consider. We shall make little attempt to comment, but will simply examine what they are doing.

For our purpose we will take the Gas and Electric Light Commission of Massachusetts, the Public Service Commission of New York, and the Public Utilities Commission of Wisconsin. These are the only commissions with a jurisdiction over public service corporations other than steam railways that have a long enough history to show much accomplished. The statements for New York represent a study of only the first district. The general jurisdiction of these commissions include: —

A. Establishment of uniform accounts.
B. Publication of statistics.
C. Quasi-trade journal functions.
D. Service.
  1. Improvement of service.
    a. Upon commission's own initiative.
    b. Upon complaint.
  2. Extension or abandonment of service.
    a. Upon commission's own initiative.
    b. Upon complaint.
E. Safety.
F. Valuation of property.
  1. Physical property.
  2. Other property.

G. Capitalization.
H. Regulation of rates.
I. Policy of the commission as to the admission of new companies into the field, the consolidation of companies, and as to the transfer and sale of rights of companies.

From the standpoint of a discussion of corporation finance we are interested only in that part of the jurisdiction including

(1) Valuation.
(2) Capitalization.
(3) Regulation of rates.
(4) The limitation of competition as an offset to the limitation of earnings through rate regulation. The discussion will take up the work of all three commissions under each head.

Valuation (Massachusetts)

Valuation of Physical Property

In the case arising from a petition of the mayor of Salem and customers *vs.* the Salem Gas Light Company, the commission states with some definiteness what it will consider in its valuation of any company's property. It quotes the court in the case of Smith *vs.* Ames as the authority to be followed: —

And in order to ascertain the value, the original cost of construction, the amount and market value of its bonds, the present as compared with the original cost of construction, the probable capacity of the company under the rates prescribed by the statute, and the sum required to meet operating expenses are all matters for consideration, and are to be given such weight as may be just and fair in each case.

Valuation of Property Other than Physical

The commission has no occasion to place a value on the non-physical property, because it never allows a company to increase its capital to exceed the value of the physical property. Whenever possible, through its rate-regulating powers, it compels a company, capitalized in excess of this, to reduce its capitalization to this limit. In case of the consolidation of two companies, it never allows the capital of the new company to exceed in amount the sum of the separate capitals of the former companies.

Valuation (New York)

Valuation of Physical Property

Information about the method of valuing a corporation's physical property as a basis for rate-making, comes from two cases. Experts of the commission made an appraisal of all the property of the Bronx Gas and Electric Company. This included cost to reproduce and depreciation. The commission undertook similar appraisal work on the Kings County Electric Light and Power Company. It makes such appraisals either in connection with bond or rate cases, or in anticipation of reorganization applications. The significance of a consideration of cost to reproduce and depreciation will be clear after a study of the methods of valuation the Wisconsin commission employs.

Valuation of Property Other than Physical

In prescribing uniform accounts, the commission orders that franchise accounts shall be charged only with the amount actually paid to the state for the right, exclusive of taxes. Furthermore, the corporation must amortize this amount during the life of the grant. It must similarly charge all other intangible assets at their actual money cost alone; and must amortize this amount during the life of the asset.

Valuation of Physical and Other Property (Wisconsin)

The commission must value all the property of every public utility. It holds a public hearing, after notice to the corporation, before the final determination of the value. The commission may at any time, upon its own initiative, make a revaluation. It must publish separately in its annual reports the value of all property used, and the value of the physical property used, by all public utilities.

In compliance with the law, every bit of physical property of every utility in the state is to be valued, and constant revaluations are to be made to keep these values up to date. In the case of Hill *et al.* *vs.* The Antiago Water Company, the commission makes a comprehensive explanation of the methods of obtaining a valuation as the basis of rate-making.

There are three such valuations: —

(1) Original cost.
(2) Cost of reconstruction.
(3) The present value.

Which of these valuations the commission may use depends on the special circumstances of each case.

When it includes only proper charges, and when there have been no unnecessary wastes or mistakes, of such nature that no one but the owners should be held responsible for them, then the original cost of construction would seem to represent the investment that has been made in the physical property of the plant.

Thus the commission states the circumstances under which the original cost properly represents the investment value of the plant. It ascertains this cost from the construction accounts. They should show: the cost of the various parts of the plant; the cost of engineering, superintendence, and management; the amount allowed as interest during the period of construction; the amount, if any, at which bonds were discounted; the basis on which contracts for construction were let; the basis upon which stock was issued; promotion expense, cost of franchises, and other items. In short, each of the various items entering into the cost of the plant should be shown in detail.

The commission has this further to say concerning the original cost valuation: —

The original cost, even when shown in detail, may not be the same as the value upon which the investors are entitled to reasonable returns. The question here is one of equity between the investors and the customers. The former are entitled to reasonable returns on a reasonable valuation; the latter are under obligations to pay rates which will yield such returns. The problem is to find the valuation equal to both sides. This value may not always be represented by the amount of money actually invested. The plant may have been built when prices were unreasonably high or low; there may have been excessive promotion fees, private understandings with the promoters, and so on. All of these things must be taken into consideration. Subject to such considerations, if satisfactory records have been kept, the original cost as estimated from the construction accounts is accepted as correctly showing the value of the investment.

If the records of original construction cost are wholly or partly lost, so that the original cost cannot be correctly ascertained, the value has to be determined by what it would cost to reconstruct the plant. The commission describes the method of obtaining this cost: —

To begin with, it is necessary to obtain a complete inventory of the physical property. This inventory must be secured by actual inspection, aided by the records and such other information as may be had from the company. This inventory should include not only the different parts of the property of the plant, but the amount or quantity of labor and material required to place it in position as a part of the complete plant. The next step consists of finding a suitable price per unit for the labor and material required. The prices are usually those which constitute the average market price for the last few years, modified by local conditions. From these facts the total cost of labor and material that enters into a plant can be computed. In addition it is necessary to ascertain the time required for construction, in order that the interest on the cost during the construction period may be estimated. The probable cost of engineering, superintendence, insurance, and various other factors are also to be computed. The sum of the costs of all these elements is considered to constitute the cost of construction new.

As a third possibility the commission may use the present value. The total amount of depreciation is deducted from the cost of reconstruction new, giving the present value of the plant. In many cases companies have charged rates ample to cover operating expenses, including depreciation, together with a fair amount for interest and profits, but have distributed to the stockholders the amount which should have been reserved for depreciation. This practice, the commission argues, is one way of paying dividends out of capital. Since part of the stockholders' capital has been returned to them, and their investment decreased proportionately, it is only fair that the sum upon which returns are to be estimated should be reduced accordingly. An alternative to reducing the investment valuation is to keep the plant value up to the cost of reproduction new, and make the managers pay back from earnings the amount diverted from depreciation. In all cases the franchise is to be valued at its actual cost alone, and no other intangible assets are to be considered.

A further element contributing to the value of the investment is the cost of business. This consists of the deficit from operation during the development period. The commission considers it as necessary a cost as the cost of plant construction, and believes it should be treated as part of the capital invested. An alternative to charging this cost to capital would be to amortize the amount by charging it directly to the consumers as an addition to the price or rate. In that case it becomes a temporary charge, borne only by those consumers who exist during the amortization period. The commission considers this inequitable to the unlucky consumers who are burdened by it.

Capitalization (Massachusetts)

Though originally the board had no control over capitalization, it was not slow in making clear that a power of regulation was desirable. As a result it has to-day a most effective control. From the first the board made it evident that it would consider as capital, upon which dividends were to be earned, only an amount equal to the actual cash paid in. This is shown in the following statement: —

> Over-capitalization (watered stock) is a perpetual and unjust burden on the consumers. The stockholders are entitled only to a fair and reasonable dividend on the actual amount of cash

paid in. The money used in the extension of plant, if paid out of surplus, should not be capitalized, but should be for the benefit of the consumers by reducing the price of gas.

What annoyed the board was the companies' practice of capitalizing surplus earnings by issuing stock and scrip dividends upon them. This practice, with the board's views concerning it, is illustrated in the case of the Springfield petition of 1893. The Springfield Gas Company had been incorporated with a capital of $50,000, subsequently increased to $500,000, mainly through the issue of stock dividends, which in nearly every case had been equaled in value by additions to the company's plant. In discussing this situation, the board said in part: —

The consumer is in duty bound to pay three charges: —

(1) the fair cost of gas;
(2) fair dividends on a reasonable amount of capital;
(3) such excess as will give the company sufficient surplus to meet extraordinary accidents and to conduct its business with the highest economy.

If he pays more, and the company converts the excess into new capital, increasing it to a figure beyond the fair amount demanded for the business, he is burdened with too high a price for the gas and a dividend charge upon his contributions.

As a result of continual agitation on the part of the board, the following law, prohibiting the issue of stock and scrip dividends, was passed: —

> No company shall declare any stock or scrip dividends or divide the proceeds of any sale of stock or scrip among its stockholders, nor shall any company create any additional new stock or issue certificates thereof to any person, unless the par value of the shares so issued is first paid in cash to its treasury.

After the passage of this law, the board still lacked the complete control over capitalization it desired. So it secured the passage of stock and bond laws in 1894 and 1896 to the effect that: —

> A gas or electric company shall issue only such amounts of stocks and bonds as the board may from time to time vote. The board shall render a decision upon application for such issue within thirty days after final hearing. The board shall make out a certificate of its decision, including a statement of the purposes to which the proceeds of the issue are to be put, a copy of the certificate going to the company, which shall use the proceeds for no other purposes than those described.
>
> If when the board approves an issue of stocks and bonds, it determines that the fair structural value of the company's plant is less than the outstanding stock, it may prescribe conditions and requirements it considers best adapted to make

good these impairments of capital stock, or before allowing an increase it may require the capital stock to be reduced to an amount not exceeding the amount of such impairment. *In case of an authorized increase of capital stock, the shares shall be offered proportionally to the shareholders, at not less than the market value thereof at the time of increase. This value is to be determined by the board.*

If the increase does not exceed 4 per cent of the existing stock, without offering the same to the stockholders, and in other cases, if after the time allowed to the shareholders any shares remain unsubscribed for, the directors may sell them at auction to the highest bidder at not less than par to be paid in cash.

The purposes for which companies wish to issue new securities are three: —

(1) The purchase of existing plants and properties;
(2) The construction of new plants and construction of additions to present plant and facilities;
(3) Refunding of bonds and floating indebtedness.

In the case of a petition for permission to issue securities for any of these three purposes, the board follows the ironclad rule that the amount authorized shall in no instance be more than actually necessary to secure the exact amount of funds required.

This is well shown in the case of an application of the Fall River Gas Works for the approval of an issue of new capital stock to the amount of $50,000. It wanted the funds to purchase the plant of the Manufacturer's Gas Light Company, and to enlarge its own plant. It was found that the purchase price was equivalent to 780 of the shares of the buyer. Upon investigation the board was satisfied that this price represented the fair structural value of the plant, not including the franchise and intangible assets. The board ruled that 1620 shares of stock were ample, the proceeds of 780 shares to be devoted to the purchase and 840 to improvements.

An illustration of an application of this principle in a petition on account of new construction is found in the board's action upon a petition of the Brookline Electric Light Company (1897), for an issue of $200,000 of bonds in order to make additions and extensions to the company's plant. The board thoroughly investigated the company's plans, and examined its plant. Finding that the fair structural value of the plant equaled the outstanding stocks and bonds, and that the proposed extensions and additions were needed and would require the amount petitioned for, the board approved the issue.

The board applies at every opportunity the clause of the act demanding that if at the time of approval by the board of an issue of stocks or bonds the fair structural value of the company's plant is less than the outstanding stocks and bonds, the board may prescribe the requirements it considers best adapted to make good these impairments, and may demand that the stock be reduced. Thus, in 1889, in the case of the application of the Dedham and Hyde Park Gas Company for approval of an issue of mortgage bonds to enlarge and reconstruct its plant, when it found that the stock exceeded the plant's value by about $20,000, it allowed the petition only upon condition that the company reduce its capital stock from $100,000 to $80,000.

In the treatment of petitions for the issue of stocks and bonds for refunding operations, the board exercises the greatest caution. Difficulty arises in the determination as to whether the debts have arisen from expenditures for extensions or for repairs and renewals. The board constantly guards against capitalizing depreciation.

The petition of the Boston Electric Light Company for $50,000 of an issue of $250,000 to fund a part of the floating debt illustrates this situation. Though the company had annually appropriated large sums out of income to depreciation, because of the rapid progress in electric lighting methods the sums applied had not been sufficient to make up for this loss. Recent legislation had compelled it to remove its overhead line in a part of the city and to place new conduits under ground. So the company found itself facing an extraordinary rate of depreciation. Probably public convenience would demand still further improvements in the near future. The board ruled: "Clearly, this situation imposes on the corporation, in its own as well as the public's interest, the duty to apply from its income a sum much larger even than heretofore to the payment of its floating debt and toward the cost of new improvements." Denying the petition, the commission said: "The cost of renewals and reconstruction necessarily incident to the proper conduct of the business, and of replacing property no longer required, is fairly chargeable upon earnings, but only actual additions to the plant upon capital."

Capitalization (New York)

A public service corporation in the State of New York may issue stock, bonds, notes, or other evidences of indebtedness, payable at more than twelve months from the date of issue, when necessary: (1) for the acquisition of property; (2) for construction, completion, extension, or improvement of its facilities; (3) for the improvement or maintenance of its service; (4) for the discharge or lawful refunding of its obligations; provided the corporation has secured from the commission an order authorizing the expense accounts, such as expenditures for replacements, and insure that in the future capital will not be impaired. To guard against improper uses of the money obtained from the sale of securities, the commission includes in its certificates of approval the requirement of monthly reports of receipts and disbursements on such accounts, with the further requirement that the books of account shall be open to audit by the commission.

As a result of the investigations of finances and appraisals of property conducted by the commission, many of the original applications have been modified, or even withdrawn, while the examinations were in progress. The commission has in several instances been forced to deny applications, or parts of applications, because the funds to be obtained were to be devoted to making replacements. It allowed the capitalization only of those expenditures which added increased value to the plant.

Capitalization (Wisconsin)

In its report for 1909–10, the commission pointed out weaknesses in the provisions of the law giving it jurisdiction over stock and bond issues. When a corporation desired to issue stocks, bonds, or other evidences of indebtedness for money only, the scope of the commission's inquiry was limited to ascertaining merely whether such an issue would be legal or not. The commission makes this criticism: —

The law as it now stands is of little value as a means of ascertaining many important facts relating to the past issues of the securities of public service corporations, which should be matters of record in connection with any new issues of securities. The financial history of such corporations is vital to investors, and if made a matter of record, will accomplish much in the way of preventing over-capitalization of such corporations. . . . It might be well to strengthen the law in other respects. At present the corporation determines the amount and character of the securities it wishes to issue, also the purposes for, and the terms upon which, the same are to be issued. The legislature could prescribe the purposes for which such securities could be issued, determine the character and limit the amount of the same to that which would be reasonably required for such purposes, and leave to the commission to ascertain whether the proposed purposes are within the terms of the statute and whether the character and amount of the issue are reasonably required for such purposes.

The law as amended in 1911 would seem to be proof against any of the defects of the former law complained of by the commission. It reads: —

No public service corporation shall issue any stock or certificate of stock except in consideration of money, or of labor or property, at its true money value as found and determined by the commission, actually received by it equal to the face value thereof; or any bonds, notes, or other evidences of indebtedness, except for money or for labor or property at its true money value as determined by the commission, actually received by it equal to 75 per cent thereof. No bonds, notes, or other evidences of indebtedness shall be issued at less than 75 per cent of the face value thereof, plus the amount of any discount paid or incurred upon the issuance of such bonds, notes, etc.

No stocks, bonds, or other evidences of indebtedness, except such as are issued for money only and payable one year or less from the date thereof, shall be issued without the consent of the commission.

In case of an application for the right to issue stocks, bonds, etc., for money only, the corporation shall file with the commission a statement setting forth: —

(*a*) purposes for which they are to be issued;
(*b*) the amount and character of the proposed issue;
(*c*) the terms on which they are to be issued;
(*d*) the total assets and liabilities, *and the previous financial operations and business of the*

corporation, in such detail as the commission may require.

For the purpose of enabling it to determine whether the proposed issue complies with the provisions of the act, the commission may make any such inquiry or investigation, hold such hearings and examine such witnesses, books, papers, documents, or contracts as it may deem important in enabling it to reach a determination. It may also make a valuation of all the property of the corporation.

If the commission decides that the proposed issue complies with the law, it gives the corporation a certificate of authority stating (1) the amount of such stocks, and bonds, reasonably necessary; (2) the purposes for which they are to be issued; (3) the terms upon which they are to be issued. The corporation must not apply the proceeds to any purposes not specified in the certificate.

In case of an application for an issue in return, as a whole or in part, for anything other than money, the corporation shall file a certificate showing also (4) the description in detail and estimated value of the property or services for which they are to be issued; (5) the amount of money, if any, to be received in addition to such property, services, or other consideration.

The commission shall obtain the true valuation in detail of such property, service, or other consideration, and shall make examinations and investigations as before.

The commission's certificate of authority in these cases shall contain, in addition to (1), (2), (3), the true value of the property or service or consideration other than money as found and determined by the commission.

A corporation may issue stock, bonds, or other evidences of indebtedness, when necessary for organization expenses and all other expenses reasonably required in connection with all the financing and construction of the property; for the acquisition of property, and for the construction, completion, extension, or improvement of its plant; or other facilities for the improvement of its service; or for the discharge or refunding of its legal obligations. No corporation shall make such issues for any purpose not chargeable to its capital account. If it should make such an issue for purposes not chargeable to capital account, it must set aside annually such a sum as to amortize the amount by the time the obligations become due.

Regulation of Rates (Massachusetts)

It is difficult to determine just what the board has accomplished in the way of price reductions. Though each year between twelve and twenty gas companies have reduced their rates, in most cases they have not made the reduction as a result of complaints. Average prices paid by coal-gas consumers have fallen from $1.72 in 1886 to $.91 in 1909. Changes in methods of production and distribution, however, have resulted in such reductions in costs, from time to time, that it is impossible to draw definite conclusions as to how far this appreciable downward trend in prices has been due to the efforts of the board. Moreover the board has been unable to make any general action to the end of bringing about a general price reduction, but it has been forced to confine itself to those irregular cases which chance, in the form of complaints, has brought under its jurisdiction. However, it is fair to say that because of the board's existence prices have probably responded more quickly to the diminutions in costs due to inventions and improved methods of production.

Cost-reducing improvements in apparatus and methods are sure sooner or later to bring about a general price reduction. However, in such a business as electric and gas lighting, where nearly every company enjoys a monopoly in its own territory, under ordinary conditions improved methods are likely to be much slower of general adoption than in the case of competitive industries. A company making satisfactory profits without fear of competition will hesitate a long while before installing new apparatus or adopting new methods, which, although likely to diminish costs and so increase profits, will necessitate a large initial expense. Presumably the existence of the board has gone far toward overcoming the tardiness of prosperous companies in installing new and cost-saving apparatus. The commission keeps informed about the latest and most improved methods of manufacture. Whenever a company is brought before it by a petition for a reduced price, it bases its decision upon the costs by the most improved methods of manufacture. An order for one company to reduce prices leads to others. No community, learning that another obtains gas or electricity cheaper than itself, is content until it has brought its grievance before the board. Thus, thanks to this natural determination of every consumer to pay no more than the next fellow, the board is in a position sooner or later to scale down prices throughout the state to the cost level of the most efficient means of production. As a result the companies tend to adopt improved devices and methods more quickly than they would altogether of their own accord.

On the petition of the customers of the Springfield Gas Company for a reduction in the company's price, the board stated the charges contributory to a proper price: —

The consumer is in duty bound to pay three charges: —

(1) fair cost of gas;
(2) a fair dividend on a reasonable amount of capital;
(3) such excess as will give the company sufficient surplus to meet extraordinary accidents and conduct its business with the highest economy.

"Fair cost" obviously means the fair manufacturing cost. In satisfying itself as to whether or not the company is employing the proper methods to supply the public with gas or electricity at a fair manufacturing cost, the board subjects the companies to thorough tests.

The second charge upon consumers is a fair dividend on a reasonable amount of capital. What the board considers a reasonable amount of capital has already been stated under the head of "Capitalization." In an investigation arising out of a petition of consumers of the Chelsea Gas Light Company, the board found that the prices were not higher than those of other companies, that the company was economically managed, that for several years it had been making only about 6 per cent on the capital; but it also found that the amount of capital was unusually large. It appeared that the present management had received a company heavily capitalized, due largely to a distribution of stock dividends. The board considered that under such circumstances low dividends would not be considered a reason for keeping prices at their present level, and ordered a reduction.

According to the board no single uniform rate of income return to be allowed on investment can be set. It says (1909):—

To assume that some single rate of dividend can be applied to such investments would not infrequently put a premium on managerial inefficiency, invite a failure to regard properly the company's obligations to the public, and thus imperil the public's interests. In fixing a fair rate of return for individual companies, certain features of local history and condition should not be overlooked. It would be short-sighted policy which would overlook the relation of the actual investments of the shareholders to the total investment in the business, of which the value of the company's plant may afford the best indication. When the plant value is high compared to the capital stock, along with a high grade of service and a relatively low price, it affords a convincing indication of high efficiency in the management and a commendable regard of the public's interest. Under such a management, the public interests will not be prejudiced, but may rather be conserved by a moderate increase in dividends over what might be claimed under other conditions.

The board defines pretty distinctly what shall constitute a proper surplus to contribute to the charge upon consumers. It shall be sufficient to enable the company to meet extraordinary accidents and to conduct its business with the highest economy.

Again quoting the commission: —

The board believes that the policy of creating a surplus should be commended rather than condemned. The history of the business shows the lowest prices where this policy has been pursued, as it allows an increase of facilities without a corresponding increase of dividend-demanding capital. The surplus in this case cannot be considered the exclusive property of either the shareholders or the consumers. It would seem that the company is under obligation to use this in order that substantial advantages will accrue to the public. From an examination of the works it is apparent that there is an immediate demand for investment in the plant of a portion of this surplus. This policy should be continued. Thus the surplus will act as an insurance against loss if prices are reduced and consumption is not increased.

In justification of the idea of the joint ownership of surplus by the company and the public, the board's argument in the case of the Worcester petition of 1902 is to the point: —

> But it must not be forgotten that however skillful and wise may have been the management, the company has been able to acquire its present accumulations only by the exercise of a monopoly, which it has enjoyed by the favor of the state, and which is in a measure assured to it by law. This is certainly a most important contribution by the public to the company's prosperity, for which the public is entitled to a special consideration. When both parties have so clearly contributed to these results, neither ought to claim the exclusive rights to the benefits they confer.

In the case of J. A. Gale and other consumers of the Haverhill Gas Company, the board calls attention to the debt owed by the present consumers to those of the future, and at the same time to the fact that when the surplus exceeds certain limits, it should revert to the present consumers in the form of reduced prices.

Regulation of Rates (New York)

The commission can act on the rates of common carriers only on complaint. It has not established any definite principles of rate-making. Speaking of a failure to provide for depreciation, in favor of high dividends, the commission says: —

The stockholders, having obtained in the form of dividends the earnings that should have gone for maintenance charges, should not now object because renewals and increased maintenance and interest charges make dividends temporarily impossible, nor should this presumably temporary situation stand in the way of reduction of fares, if other considerations justify such a reduction.

Regulation of Rates (Wisconsin)

The Wisconsin commission states of the charges which make a proper rate: —

Under normal or ordinary conditions, public utilities are entitled to earnings that will cover the operating expenses, including depreciation, and a fair return on the investment. These items may be said to constitute the cost to the users of the services that are furnished. (Manitowoc Gas and Electric Company, December, 1908.)

With the installation of the accounting systems prescribed by the commission, a company's expenses of operation and everything connected with its finances may be accurately determined. The commission makes no attempt to give a normal rate of depreciation, but states that the rate is a variable dependent upon the circumstances peculiar to each case. The method of ascertaining the investment value or amount upon which the rate of profit is to be estimated has been given under that heading. In the case of Hill *et al* *vs.* The Antiago Water Company, the commission discusses the proper return on the investment. The interest rate it states to be a variable, governed by the conditions of each case. Profits above interest, it says, shall be high enough to encourage new capital to enter the field. Since risks are greater in new enterprises, higher profits shall be allowed them. As the utility becomes older and the risk decreases, profits shall decrease accordingly. It is the duty of the commission to protect the consumer from monopoly prices and discriminations. The only instance in which the commission attempts to name at all definitely what is a proper rate of return is in the case of the Chippewa Railway Light and Power Company, in which it says: —

> Many authorities held that it [the rate of return] should range from eight to ten per cent on a fair valuation of the plant; many place it as low as six per cent. It is not unlikely that the figures thus mentioned represent the maximum and minimum rate under approximately normal conditions, and that, as in the case of depreciation, the actual rate allowed should depend on the conditions in each case.

Policy as to the Admission of New Companies into the Field (Massachusetts)

The board, upon application in writing by any company, chartered under the laws of the commonwealth, after notice and hearing, may authorize the company to go into the gas or electric business. It may engage in such business in the territory or any part thereof that the board may designate, but shall not do so unless authorized by a two-thirds vote of the shareholders.

In granting this authority the board shall prescribe the time, not less than six months, within which the company shall erect and equip a plant for carrying on its business, and shall designate the minimum capacity of the plant. If the company fails to erect the plant within the time required, the authority becomes void, and shall not be granted again for two years. No other company or person in the community where a company already exists may lay pipes or erect wires without the consent of the mayor or aldermen or board of selectmen. Any company aggrieved by the decision of the municipal authorities on the coming of a new company, may, within thirty days after notice of such decision, appeal to the board of gas commissioners, which shall thereupon give notice and hear all parties concerned. The decision of the board shall be final.

Practically all the cases of such new companies have come before the board through appeals by the old company from the action of the municipal authorities. One of the first was the Boston Electric Light Company *vs.* A. W. Perry (1889). Perry had purchased a small, private, electric lighting plant. He moved the apparatus to a block he owned, and from there he ran wires across Summer Street to blocks that he leased. He had obtained no permit to do this, as he did not know that it was necessary. Later he had asked for one, and, as no remonstrants appeared, the aldermen had granted it. The company, stating that it had seen no notice of the hearing, showed that the grant from the aldermen allowed Perry to light a valuable and substantial part of the city. Since he did not possess a general franchise, he did not have to furnish gas upon a reasonable demand as the corporation had to; the corporation argued that though Perry could, perhaps, furnish light to certain sections more cheaply than it could, nevertheless to let the decision turn on this alone was an injustice to the company, which could furnish light to the whole city at a less rate than Perry. The board agreed with this argument.

The board gave a very full statement of its reasons for protecting the large company in such a case in the hearing on an appeal by the Edison Electric Illuminating Company (1895) from an order of the aldermen permitting

O. H. Durrell to run pipes across the streets. As between corporations and individuals it seems to be a wise policy to entrust the lighting of towns and cities, so far as it requires a public franchise, to perpetual bodies, subject to state supervision and regulation, and capable of continuous ownership. Such bodies serve the community as a whole more safely and economically.

The commission says: —

The large lighting companies, holding valuable franchises, are compelled to submit to the orders of this board in regard to the quality and prices of light. The large company is required to satisfy all reasonable demands for extension, and in fact to furnish the whole community with light. It is clear that if isolated plants are permitted to exercise public franchises over limited areas in the city, the burden of each company will be enhanced, for such a removal of its customers, as would result from the multiplication of business, would of necessity add to the cost of light to the whole community.

If it were shown that a company rendered inefficient service or charged unreasonable rates, or defied legal restraint, these circumstances might be conclusive in favor of introducing competition. The multiplication of plants, exercising public franchises, and each lighting a limited area of the public territory, would, in the first place, lead to great confusion, and, in the second place, would be detrimental to the general consumer, who must always be dependent upon the large general companies, and for whom the companies must maintain a sufficient plant and lines.

It is equally true that the board is willing to protect an existing company which is giving satisfactory service, from the invasion of its territory by a large company. The board's action, in the case of an appeal by the Haverhill Electric Company from a decision of the aldermen in favor of the Haverhill Illuminating Company, shows this. The contract of the electric company to light the city had just expired. Some time before its expiration, the city advertised for street-lighting bids. The bid of a certain group was successful, and they incorporated into the Haverhill Illuminating Company, and received from the aldermen power to carry on the business of supplying electric light and power to the city. At the hearing there was no attempt to show that the service of the present company was poor or its prices high. The evidence showed that its equipment was as efficient and economical for the work required as that which the new company proposed to install.

The permit rested solely on the fact that the illuminating company offered to do the street-lighting at a price which would amount to about $6000 less than the price of the old company. The old company had $250,000 invested in the business. The new proposed to invest $150,000. It was more than probable that this latter investment would be too small to carry on a business of a volume equal to that then being done, and it was very doubtful if the company planned an extension of its business. There was no attempt to show that there would be a profit in the undertaking; in fact, the testimony amounted to an admission that it would be unprofitable.

It seemed to the board that though the admission of the new company might, for a while, result in lower prices, the competition would in the end prove expensive for the community. The ultimate result would be a union or consolidation which would bring an undue burden of capitalization upon the public, and an excessive investment in plant and apparatus. The existing investment of $250,000, which was adequate, would be increased to $400,000, at least, and that amount would rapidly grow larger. In view of these facts the board did not hesitate to uphold the protest of the old corporation.

It is clear that the board has developed a fixed policy, by reason of which the existing company is vastly more secure in its position than it ever had been before the creation of the board. In the first place, the board practically denies the right of individuals to enjoy franchises, in competition with the perpetual, state supervised corporations. It considers that the corporation has proved itself the best equipped unit to give the whole community the most economical service, and in view of this fact, it considers that the enjoyment of a right to furnish a part of the community by an individual results simply in a burden upon the corporation which it should not be forced to bear. With regard to the admission of a new corporation into the field, the board's policy is just as decisively in favor of the existing company. As long as the corporation obeys the law, serves the community efficiently, and charges reasonable rates, the board considers it deserving of retaining its position against all comers. The burden of the proof in every case rests upon the company seeking to enter the field. If it cannot prove that the existing company is not living up to the three requirements named, it has not shown the necessity of its establishment. Capital invested in supplying any community should be kept to the lowest limit which insures efficient service. The board adheres to these principles so strictly that in one case it sustained an existing company, which was giving only a mediocre service, against a company seeking authority to serve the same territory, on the condition that the existing company should bring its service up to standard within a certain, stipulated time. (Appeal of Easthampton Gas Company, 1908.)

Policy as to Consolidation of Companies (Massachusetts)

The statutes allow the purchase and sale of the rights of one company by another, or the consolidation of two or more companies, only on the board's approval. Thus the board has full control of a company's actions in this direction.

The board bases its decision, in cases of this kind, upon its estimate of whether or not the community will benefit from the proposed changes. A study of two cases shows this.

In 1889 the New Bedford Gas Company and the New Bedford Electric Company petitioned for authority for the sale of the plant and franchise of the electric company to the gas company. At the hearing the Edison Electric Illuminating Company appeared in opposition. Since the consolidation seemed to promise no public benefit the board refused to allow it. At the request of the petitioners the board later reopened the case. The new evidence showed that the incandescent electric lighting company confined itself to one section of the city, that it was making no effort to increase this area, and that it could make no considerable extension except at an expense practically prohibitive. It also appeared that considerable economies might result from the operation of the business by the gas company. These would be effected by the use of fuel of little or no market value in the place of coal, by a reduction in labor costs, and by the removal of the electric plant to unoccupied land which the gas company owned. The gas company was ready to erect a plant with facilities for lighting the whole city. The board believed these facts pointed to improvement in both quality and price and permitted the consolidation.

The Worcester Gas Light Company and the Worcester Electric Light Company applied for authority (in 1891) for the gas company to engage in electric lighting. Plans had been made for the purchase of the rights and property of the electric light company by the gas company. The electric light company had just completed an addition costing $125,000, making a building of ample size to meet the wants of the community for years. It had managed its affairs with strict economy, and pursued a conservative policy. The board was unable to find that any appreciable saving in the conduct of its affairs or the manufacture of its product could be secured by the change. The businesses used no article in common. Coke for fuel would be available from the gas works only a few weeks a year, and even then transportation charges would be prohibitive of its use. The wide separation of the plants and the difference in the training of the employees would make necessary separate superintendents and employees. The present dividends of the gas company were eight per cent, of the electric light company, five per cent. The contract between the two would probably require $300,000 extra capital. With no facilities for reducing the cost of electric light, the stockholders of the gas company would doubtless suffer a reduction in dividends. This could be prevented only by advancing the prices, lessening the service, or using the surplus profits of the gas company. Any of these courses would be contrary to the public interest. It would be for the interest of the consolidation to increase the sales of gas rather than of electricity, and the public would object to such a policy. The board refused to permit the combination.

Policy as to the Admission of New Companies into the Field (New York)

Without having first obtained the permission of the commission, no corporation shall begin the construction of a street railroad, or exercise any franchise or right under any provision of the railroad law. The commission shall grant its approval, whenever it shall, after due hearing, determine that such construction or such exercise of the franchise or privilege is necessary for the public service. The provision concerning gas and electrical companies is substantially the same.

Decisions of the commission have done little toward formulating a definite policy, to be followed in acting on applications for the exercise of franchise rights and other powers mentioned in clauses of the act relating to the admission of companies into a new field. It has, however, come out flatly in defining its position as to the admission of new companies into a field already satisfactorily supplied: "If additional companies are allowed to enter a field already adequately supplied, the public in the end must pay higher rates or accept poorer service." In the case of the application of the Longacre Electric Light and Power Company, in 1908, the commission stated its views at length. This company petitioned for the approval of a proposed bond-issue. Since the proceeds from the sale of the bonds were to be used to build a plant, the request amounted to an application to begin business. The board denied it.

The applicant did not prove that the existing companies were not properly serving the public interest and convenience, and that it would be to the public advantage to have a new company authorized to enter the field. If a competing company were to enter the field, it was unlikely that it would continue independent operation for any length of time.

Competition was not desirable, the board said. The existence of competing companies leads to much more frequent opening of the streets, resulting in injury to pavements and more expense to the taxpayers. Competition involves duplication of plant and equipment. It is an established fact that one company can generate current for the whole of Manhattan more cheaply than several companies, each trying to serve the entire borough. As a result of duplication of capital and the less economical methods of production and distribution which accompany competition, the cost of furnishing current is higher than under efficient monopoly. Furthermore the existence of duplicate plants and wires is almost always urged as a reason for higher charges when the state attempts to lower rates. Practically all the advantages claimed as the probable result of competition can be secured through the powers of the commission. Until it has been demonstrated that these are ineffective, it would be unwise to adopt a method which has proven ineffective in the past.

Policy as to the Consolidation of Companies (New York)

No public service corporation, foreign or domestic, can hold any part of the capital stock of another public service corporation unless authorized to do so by the commission. Except as stock shall be transferred or held as collateral with the consent of the commission, no corporation of any description, domestic or foreign, other than a public service corporation of the same sort, can hold more than ten per cent of the capital stock issued by any public service corporation. No franchise or right under any franchise, to own or operate a public service enterprise, can be transferred, or leased, without the commission's approval.

It is apparent that the commission has a check over the control of companies by holding companies. There are, however, no cases of application for the right to acquire the stock of other corporations which bring out facts worthy of notice.

The commission is in a position to accomplish much toward conserving the public interest through its control over leases. The widespread bankruptcy of the New York surface lines was due to no one thing more than the extravagant terms on which many lines had leased the property of others. In some cases the Metropolitan Street Railway Company had made leases under which it had agreed to pay twenty-one per cent upon the inflated capital of the companies whose lines it leased. The commission makes it evident that it will allow no more leases upon such terms. "Leases made under which extravagant rentals are paid lessen the available net income." "Only five applications were presented to the commission for the approval of contracts and agreements. Only one was similar to the numerous leases of the Metropolitan system in the past, and that was disapproved."

Policy as to the Admission of New Companies into the Field (Wisconsin)

No license, permit, or franchise can be granted to any person, partnership, or corporation to engage in any public service enterprise, where there is in operation under an indeterminate permit, as provided in the act, a public utility engaged in a similar service, without first securing from the commission a declaration, after a public hearing, that public convenience and necessity require such second utility.

An indeterminate permit may be granted, where the existing public utility is operating without an indeterminate permit (1907). By an act of the legislature in 1911, all existing franchises and permits possessed by public utility corporations were made indeterminate permits.

The commission stating its views on competition between public service corporations, says: —

There are many important differences between public service and commercial enterprises. The former usually require a much larger investment in plant, equipment, and other fixed property, which in turn means heavy annual charges for interest, repairs, and maintenance. The conditions which surround the former, are also of such a character that the service which they render can usually be furnished at a much lower cost by one plant than by two or more in the same locality. The differences between them extend to the principles of competition. In most of the ordinary commercial undertakings, the expense can usually be stopped, whenever competition has reduced prices below a profitable level. This cannot be done in the case of public service corporations. The investment in these corporations cannot be withdrawn and converted to other purposes. The interest and maintenance charges go on at about the same rate, whether the plant is in operation or not. Hence it often happens that it is better for the owners that such plants should be kept in operation, even if they fail to earn more than the actual operating expenses.

Duplication of such plants is a waste of capital, whenever the service can be adequately furnished by one plant. It necessarily means that interest and maintenance must be earned on a much greater, if not twice as great, an investment, and that the actual cost of operation is likely to be relatively higher. Competition in this service, therefore, usually means a bitter struggle and low rates, until one of the contestants is forced out of the field, when rates are raised to the old level, if not above it. In this way it often happens that the means which were thought to be preventive of onerous conditions become the very agents through which conditions are imposed. In fact active and continuous competition between public service corporations, furnishing the same locality, seems to be out of the question. This has been shown by experience. Such competition is also contrary to the very nature of things. Two distinct and separate corporations are not likely to remain separate very long after it becomes clear that the service rendered by both can be more cheaply and effectively furnished by only one of them. (Application of Lacrosse Gas and Electric Company, August, 1907.)

That conditions may arise, under which competition to a certain extent is permissible, the commission states in these words: —

The legislature doubtless intended that through the administration of this law destructive competition and rate wars and competition in all forms injurious to the public should be eliminated. The legislature could not have desired to eliminate all competition absolutely. If such a construction were to be placed on the law, it would in most, if not in all, cases be impossible for any railway to be constructed in the future to enter any city, in which there is an existing railway, because it is axiomatic that in the railway world, within proper limitations, every railway competes with every other railway, largely independent of the exact geographical location of the competitors. (Petition of the Milwaukee and Ox River Railway.)

Enterprises of a speculative nature will not receive the commission's sanction.

It was one of the purposes of the statute, under which this application was made, to insure the public against the undertaking of hazardous enterprises. It was doubtless contemplated to prevent the projection of lines for speculative purposes and through which the innocent purchasers would be made to suffer losses. (Petition of the Milwaukee and Ox River Railway.)

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